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RELAXATION AND COGNITIVE THERAPY: EFFECTS UPON PATIENTS'
ABILITIES TO COPE WITH A STRESSFUL MEDICAL PROCEDURE
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This investigation evaluated the efficacy of relaxation training and cognitive therapy separately and in combination in enhancing the coping skills of patients during epidural steroid injections. Subjects consisted of 80 back pain patients. They were randomly assigned to four groups to receive either relaxation training, cognitive therapy, relaxation and cognitive therapy, or attention control treatment. All subjects were provided preparatory information describing the procedure for the epidural injection and typical physical sensations experienced by patients undergoing the procedure. Relaxation training consisted of Jacobsonian progressive relaxation instructions which were modelled by the trainer. Cognitive therapy consisted of instructions and a work sheet designed to assist subjects in designing positive (rational) self statements concerning the injection procedure. Attention control procedures involved instructions and written exercises of equal duration to the relaxation and cognitive treatments but containing no instructions for the control of

anxiety and pain. The three experimental groups exhibited significantly fewer "self-distress" verbalizations during the injection. On other dependent measures, namely, the remaining categories of pain verbalizations, gross body movements, heart rate, and independent ratings of anxiety there were no significant differences among experimental and control groups. Results are discussed in terms of spontaneous use of coping skills, habituation, individual differences in predisposition to specific coping strategies, and possible cultural/class/educational correlates of specific coping strategies. Improvements in methodology and directions for future research are recommended.

TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
RELAXATION AND COGNITIVE THERAPY: EFFECTS UPON PATIENTS' ABILITIES TO COPE WITH A STRESSFUL MEDICAL PROCEDURE	
Introduction	1
Method	20
Subjects	
Instruments	
Procedure	
Outcome Measurements	
Results	26
Discussion	28
Appendices	37
References	107

LIST OF TABLES

Table		Page
W-1	Two-way Multivariate Analysis of Variance on Treatment Credibility	104
W-2	Two-way Analysis of Covariance on Heart Rate Data	105
W-3	Two-way Analysis of Covariance on Outcome Measures	106

RELAXATION AND COGNITIVE THERAPY: EFFECTS UPON PATIENTS'
ABILITIES TO COPE WITH A STRESSFUL MEDICAL PROCEDURE

Due to the growing availability of medical technology and health care providers more and more Americans are being subjected to procedures in which the body is "invaded" either through surgery or through the insertion of instruments into body cavities for diagnostic and/or treatment purposes. Such procedures may subject patients to unpleasant emotional responses as well as severe discomfort and pain. Researchers in health psychology have recently begun examining methods of reducing the amount of emotional and physical discomfort experienced by patients undergoing stressful medical procedures. While several of these methods have produced encouraging results in laboratory studies using analog stressors, their application in clinical settings has produced mixed results, raising questions of the generalizability of such findings. The present study will attempt to refine treatment strategies which have shown some promise for enhancing coping abilities during aversive medical procedures, and tailor these strategies to a very common as well as aversive treatment procedure, the lumbar epidural steroid injection.

Research on coping with stressful medical procedures has its roots in studies of pain perception. Early theories

of pain known as the specificity and pattern theories are reviewed by Melzack and Wall (1965), and by Melzack (1973) and the inadequacies of these conceptualizations are discussed. Modern research on pain is dominated by the gate control theory put forth by these authors which proposes that nerve impulses from peripheral fibers are affected by neural mechanisms at the dorsal horns of the spinal cord. These mechanisms serve to modulate somatic input resulting in variations in pain perception and response. This theory has helped to organize many of the previously anomalous observations regarding pain perception, and paved the way for research examining the psychological aspects of pain.

Research examining the contributions of psychological mediators has suggested that pain perception is a very complex phenomenon. The experience of pain has been associated with personality variables (Davidson & Bobey, 1970; Petrie, 1967; Spear, 1967), sociocultural factors (Sternbach & Turskey, 1965; Wolff & Langley, 1968), cognitive and emotional factors (Melzack, 1974; Sternbach, 1968), and behavioral factors (Bobey & Davidson, 1970; McKechnie, 1975; Mulcahy & Janz, 1973; Pavlov, 1927, 1928). Research has demonstrated that a subject's belief in control can increase his pain threshold and/or tolerance (Bandler, Madaras, & Bem, 1968; Bowers, 1971; Staub, Turskey, & Schwartz, 1971). Other cognitive factors implicated in pain perception have included the direction of attentional focus

(Beecher, 1959; Blitz & Dinnerstien, 1971; Kanfer & Goldfoot, 1966), and quality of attentional focus (Bobey & Davidson, 1970; Evans & Paul, 1970), the anticipation of painful stimuli (Hill, Kornetsky, Flanary, & Wilder, 1952; Wolff & Horland, 1967), anxiety about the source of the pain (Beecher; 1959, Hill et al., 1952; Wolff & Horland, 1967), and the meaning of the situation to the subject (Beecher, 1959; Lambert, Lipman & Poser, 1960). These observations have suggested a wide variety of interventions to help patients in coping with surgical procedures (Johnson, 1983) and with stressful medical exams (Kaplan, 1982).

The problem of stressful medical procedures is one which appears especially well suited to psychological interventions. Many medical procedures are brief, discrete, and predictable events, which although often necessary for effective treatment, may be extremely noxious and terrifying to the patient. The use of pharmacological agents to control patients' reactions to these events is often contraindicated due to the brief duration of discomfort experienced as compared to the considerably longer duration of pharmacological effects. In addition, the cooperation of the patient during the procedure which is often necessary for an efficient treatment may be hindered by the use of such agents. It is, therefore, conceivable that brief psychological interventions which have been shown in analog studies to effectively increase tolerance to experimentally

induced pain might be utilized to help patients cope with stressful medical procedures.

One psychological intervention which has shown promise for helping subjects cope with aversive stimuli is that of cognitive therapy. The importance of cognitive factors in the experience of aroused bodily states has long been recognized (Hunt, Cole, & Reis, 1958; Ruckmick, 1936; Schachter, 1964; Schacter, 1966). Cognitive control over aversive stimuli has been defined as "the processing of potentially threatening information in such a manner as to reduce the net long-term stress and/or the psychic cost of adaptation" (Averill, 1973, p. 293).

A class of cognitive interventions which has consistently been demonstrated to reduce physiological arousal and increase pain tolerance is that of providing subjects with preparatory information about the aversive stimuli. Staub and Kellett (1972) examined the effects of two kinds of information on subjects' responses to experimentally produced electrical shock. One group of subjects received information describing the physical sensations which are commonly experienced during exposure to electric shock. Another group was given information about the shock apparatus including safety features. A third group received both kinds of information, and a control group was given no information. Brief electrical shocks of gradually increasing intensity were then administered and

subjects were instructed to report the point at which the stimulus was first noticeable, the point at which it became uncomfortable, and the point beyond which it was intolerable. It was found that receiving both types of information resulted in subjects' labeling more intense shocks as painful, and allowing more intense shocks to be delivered before requesting that the delivery of shocks cease, than was the case in the other three groups. Neither type of information alone was shown to have a significant effect upon the dependent measures.

Further evidence that the experience of distress can be reduced by providing accurate information was produced by Johnson (1973). She hypothesized that the availability of information describing the physical sensations which would be experienced during exposure to painful stimuli would result in the formation of accurate expectations of the experience. By reducing the discrepancy between expected and experienced sensations it was reasoned that the intensity of the resultant emotional response could be reduced. This hypothesis was tested in a series of experiments in which normal subjects were exposed to ischemic pain produced by an inflated blood pressure cuff. Prior to exposure subjects were given either relevant or irrelevant information regarding the sensations produced by the stressor. As predicted, those subjects given accurate information reported lower levels of distress than subjects

in the irrelevant information conditions, while the degree of sensations reported by the two groups did not differ.

The usefulness of information describing the sensations experienced during a stressful event was assessed by Johnson, Morrissey, and Leventhal (1973) using patients undergoing a gastrointestinal endoscopic examination, a potentially threatening and unpleasant procedure. Prior to the procedure patients were given either information describing the physical sensations most patients experience, or a preparatory message objectively describing the procedure. A control group was given no experimental message. The two experimental groups required less sedative during the procedure than the control group with no significant differences between the former two groups. Patients given information about sensations frequently experienced performed better on measures of tension, restlessness, and heart rate acceleration during the examination than those who had received the procedural description.

Fuller, Endress, and Johnson (1978) demonstrated that information about the sensory aspects of a medical procedure might even be useful for patients with multiple prior experiences with the same or similar procedures. Women reporting for a routine pelvic procedure were given either sensory information only, sensory information plus relaxation instructions, health-education information only,

or health-education information plus relaxation instructions. Patients receiving sensory information performed significantly better on motor and verbal distress indicators and pulse rate changes than did patients not receiving such information. Significant differences did not appear on self reported measures of fear, however. Relaxation instructions added no significant changes to the dependent measures.

A useful distinction has been made between two classes of responses to threatening situations. The first, emotional reactions included the subjective experience of emotional arousal, autonomic correlates of emotion, and behavior intended to reduce emotional arousal. The second, danger oriented reactions included knowledge of the objective qualities of the stressor and behavior intended to reduce the level of potential danger. These response classes were suggested to be independent of one another. Thus, it was believed that a danger control response was not dependent upon an emotional response for its activation (Leventhal, 1968, 1970).

In a test of self control procedures in a real-life threatening situation Johnson and Leventhal (1974) attempted to manipulate the relative strengths of emotional and danger-control responses. Hospitalized patients referred for an endoscopic examination were given preparatory messages prior to exposure to the procedure. One message,

intended to reduce emotional reactions, described the physical sensations which would be experienced by the patient, but avoided evaluative statements suggesting degree of distress or emotional response to be expected. The other message presented behavioral instructions and practice opportunities for breathing, and swallowing techniques intended to reduce the level of danger and thus make the procedure go easier. The messages were presented either singly or in combination. A control group received no preparatory information. Results did not support the notion of independence of emotional and danger control processes. Only when behavioral instructions were combined with sensory information were danger control indicators significantly affected. Indicators of emotional reaction were reduced by both the sensory information message alone, and in combination with behavioral instructions. This was consistent with earlier findings (Johnson, et al., 1973).

Further support for the efficacy of preparatory information describing sensory experiences was provided by Johnson, Kirchhoff, and Endress (1975). Children receiving such information prior to orthopedic cast removal produced lower scores based upon behavioral ratings of distress than children receiving procedural information and children receiving no information. Furthermore, only the experimental group avoided significant increases in heart rate during cast removal.

It has been observed that the experience of pain is more acute for people who are anxious (Grimm & Kanfer, 1976, Sternbach, 1968). Behavior therapies which have been utilized to reduce subjects' experience of pain have aimed at enhancing those behaviors which are believed to be incompatible with, and thus inhibitory of anxiety (Wolpe, 1958).

Relaxation is a behavioral self control procedure believed to be incompatible with anxiety and thus efficacious for the management of pain. A study by Bobey, & Davidson, (1970) compared relaxation instructions adapted from Wolpe's systematic desensitization techniques to an "anxiety" treatment, cognitive rehearsal instructions, and a control condition. The anxiety treatment consisted of tape recorded cries, screams, and moans of women in labor. Cognitive rehearsal was a tape recording of detailed descriptions of the stress manipulations subjects would later encounter. The control group listened to a tape on the subject of study habits. Subjects were female nursing students. Following two exposures to the respective experimental or control treatments occurring two days apart, subjects were administered radiant heat and the pressure algometer, and pain tolerance levels determined for each subject on each stressor. All three experimental treatments were shown to increase subjects' pain tolerance scores as compared to the control treatment. Relaxation, however,

proved to be the most effective method, producing the most consistent and greatest magnitude of reductions.

A case study by McKechnie (1975) provided additional support for the usefulness of relaxation exercises in reducing pain perception. A male patient whose right arm had been amputated following a traffic accident experienced phantom limb pain over a nine and a half year period. Treatment consisted of training in Jacobsonian progressive relaxation exercises including imagining clenching and relaxing the fist of his phantom limb. This procedure produced complete relief from pain as indicated by the patient's self report. Earlier efforts in concentrating upon tasks or other distraction techniques were reported to have provided only transient modification of painful sensations for this patient, however relaxation procedures provided total relief from pain for periods of up to an hour after practice. Upon six month follow-up the gains as mentioned above were maintained with the addition of more rapid relief from pain upon initiation of relaxation techniques.

The role of cognitive processes in determining the emotional labels associated with drug-induced aroused bodily states has been well documented (Schachter, 1966, Schachter & Singer, 1962). This finding has been generalized to arousal states induced by pain from electric shocks. Nisbett and Schachter (1966) led one group of normal

subjects to believe that the electric shock they were about to receive would be extremely painful, and another group to believe it would be mild and easily tolerable, thus forming high and low fear conditions. Prior to exposure to the shock all subjects were administered a placebo. A portion of each group was instructed regarding the "side effects" of the drug which were actually symptoms produced by the shock. Thus, subjects' cognitive attributions about their responses to the shock were manipulated. Results indicated that those subjects believing their state of arousal to be due to the drug labeled the shock as less painful, and were more willing to tolerate high intensities of shock. This high tolerance threshold and "relabeling" process was found to occur only in the low fear condition, however.

A combination of cognitive and behavioral control procedures for the treatment of anxiety has been proposed by Meichenbaum and his associates under the label, stress inoculation training (Meichenbaum, 1975; Meichenbaum & Cameron, 1983; Meichenbaum, Turk & Burstein, 1975; Meichenbaum, 1985). As delineated by Meichenbaum and Cameron (1983) stress inoculation training is a treatment framework organized around conceptualization training, skills acquisition and rehearsal, and application and follow through. A broad diversity of treatments designed within the stress inoculation paradigm has been utilized to address an equally broad range of anxiety related problems including

phobias, anger, rape trauma, alcohol abuse, and many others (see Turk, Meichenbaum, & Genest, 1982).

The stress inoculation paradigm was based, in part, upon the three major psychological dimensions of pain suggested by Melzack (1973). These included the sensory-discriminative, motivational-affective, and the cognitive-evaluative dimensions. Meichenbaum and Turk (1976) recommended a separate category of coping skills for each of these dimensions. Relaxation training was proposed to address the sensory-discriminative dimension by reducing the muscle tension which was believed to be implicated in pain perception. Affect arousing imagery was suggested to decrease negative feelings such as anxiety and helplessness and increase positive feelings such as excitement and happiness. Thus the motivational-affective dimension would be affected and pain perception further decreased. Finally, by providing self instruction, patients' expectancies regarding painful stimuli could be manipulated, thus addressing the cognitive-evaluative dimension of pain. Meichenbaum & Turk, (1976) further recommended that patients be allowed some flexibility in selecting techniques they perceive as being most beneficial in order to allow for individual differences.

As assessment of the relative reactive effects of the various treatment components of stress inoculation training was performed by Horan, Hackett, Buchanan, Stone, and

Demchik-Stone (1977). Their test was done by using five groups of student volunteers who were subjected to the cold pressor and pressure algometer analog stressors. During training subjects were given practice exposures to the cold pressor task. Later, subjects were tested for treatment generalization on the pressure algometer as well as post-test responses to the cold pressor. Dependent measures included cold pressor immersion time, time to cold pressor pain threshold, self reported pain during immersion, total pressure endurance in mm hg, pain threshold in mm hg, and self-reported discomfort during pressure exposure. Heart rates were also monitored during both tasks.

Results indicated that the skills training component produced significant improvement on all measures taken during exposure to the cold pressor. There was no observed generalization, however, to the pressure algometer task. The education component alone, exposure, and nonspecific treatment factors were found to produce no significant improvement in pain-coping performance. The authors suggested that while the education phase alone did not appear sufficient for improving subjects' performance, it did appear necessary to provide such a conceptual framework in order for the other components of stress inoculation to be effective. Regarding the failure of exposure to impact upon pain coping ability, the authors suggested that possible therapeutic benefits of this component may have

been undermined by subjects' becoming "sensitized" to the cold pressor by means of six cold pressor presentations during training.

Recently investigators have examined issues concerning the generalizability of stress inoculation components to situations in which patients are confronted with clinical discomfort and pain. Taken as a whole, this research has been inconclusive. Most studies have attempted to utilize relatively brief interventions which might be easily incorporated into existing medical diagnostic and treatment protocols. For this reason, issues such as the severity and duration of exposure to stressful procedures, the length and number of skills training sessions provided, as well as the specific component or combination of components present in preparatory interventions were important research questions.

The effectiveness of stress inoculation interventions in helping patients cope with a stressful medical procedure was examined by Kaplan, Atkins, and Lenhard (1982). Subjects were patients referred for a sigmoidoscopy, an examination in which the mucosa of the bowel is examined by means of a scope which is inserted into the anal cavity. All subjects received information about the examination and the sensations commonly experienced by sigmoidoscopy recipients. Two types of cognitive interventions were compared. One group of subjects received training in producing positive self-statements which emphasized the

patient's own control over the situation (internal control condition). A second group learned self-statements which emphasized the doctor's expertise and control over the procedure (external control condition). Half of each group also received progressive relaxation instructions. An attention-control group received no self-instructional training, however did receive information intended to increase expectancies for enhanced coping ability. Outcome was assessed by means of heart rate, body movements and verbalizations during the procedure, and anxiety ratings by the patient, the therapist and the examining physician. Subjects were also asked to rate their physical discomfort and sensitivity by means of a postexamination questionnaire.

Analysis revealed that subjects utilizing the self-instructional strategies significantly decreased subjective anxiety as compared to subjects in the control group. Body movements and verbal behaviors were also reduced in the experimental conditions. There was no clear difference in outcome measures between the internal and external control conditions although the authors cite evidence that subjects considered the internal control treatment more beneficial than the external control treatment. Those trained in relaxation scored lower on subjective anxiety measures than those not provided relaxation training. Unexpectedly, patients in the relaxation condition, while finishing the procedure more quickly than patients in the no-relaxation

condition, overestimated the length of the procedure by nearly two minutes. There were no significant interactions between cognitive and relaxation interventions. This study suggested that both cognitive and relaxation interventions could prove useful in helping patients cope with a stressful medical procedure. These interventions might differentially affect various outcome measures, however.

Other studies applying stress inoculation training to clinical pain situations have raised questions regarding the usefulness of these procedures outside of the laboratory. Tan and Poser (1982), used a cognitive-behavioral approach patterned after stress inoculation training with patients undergoing knee arthrograms, a noxious x-ray procedure. Cognitive and behavioral skills training in this study failed to produce changes in patient's pain ratings, radiologists' ratings, and behavioral ratings of videotapes of the patients during the procedure. The authors suggested that the negative results may have been due to the brevity of the skills training intervention, and that the length and number of training sessions necessary might be further researched. They further speculated that the degree of pain under investigation might also be a determinant of the relative success or failure of a stress-inoculation approach. The knee arthrogram would probably be considered a relatively mildly aversive procedure. Finally, it was suggested treatment effects may have been offset by the

spontaneous use of coping skills by patients in the control group.

Postlethwaite, Stirling, and Peck (1986) were also unable to find significant treatment effects using stress inoculation, this time for postoperative pain control in patients who had undergone coronary artery graft surgery. Subjects were evaluated postoperatively on self reported measures of pain, daily analgesic intake, depression, and state anxiety. The authors suggested that the ineffectiveness of stress inoculation in this study might have been due to the severity of pain associated with recovery from the coronary artery graft procedure, as well as the life threatening nature of the event. By contrast, laboratory studies supportive of the efficacy of stress inoculation training utilized milder analog pain protocols which were never life threatening. Thus, components of stress inoculation might still prove useful for clinical pain of shorter duration, more limited severity, and which does not threaten the patient's life. The lumbar epidural injection was selected in the present study because it meets the criterion of being extremely unpleasant for most patients, while not producing the severe pain and life threatening potential characteristic of a surgical procedure.

For the present study it was decided not to include a no-treatment control group in the experimental design. This

decision was influenced by a number of research findings reviewed above. Specifically, preparatory information has been demonstrated to be a necessary component of skills training packages in order for training to be effective (Horan et al., 1977; Johnson & Leventhal, 1974; Johnson et al., 1973). Thus, it appeared crucial to include such information as a treatment component provided all experimental groups. Furthermore, the provision of preparatory information alone has been demonstrated to be an effective strategy for reducing subjects' experiences of distress during an aversive procedure. For this reason, it became necessary for the usefulness of treatments in the present study to be contrasted with that of preparatory information alone in order to establish their degree of efficacy. A control group which received preparatory information in combination with attentional tasks of equivalent temporal duration was designed to adequately control for these factors. Finally, the usefulness of preparatory information alone appears so well established in the literature as to make further assessment of this component by means of a no-treatment control group of questionable efficiency and utility (Fuller, et al., 1978; Johnson, 1973, Johnson, et al., 1975; Johnson, et al., 1973; Schachter & Singer, 1962; Staub & Kellest, 1972).

Due to the preponderance of support for the use of preparatory information in increasing pain tolerance, as

reviewed above, all subjects in the present study were provided basic information regarding the examination procedure, what would be expected of them during the procedure, the rationale for the procedure and typical reactions of patients undergoing lumbar epidural injections. Thus, the conceptualization training component of stress inoculation training was provided across all treatment conditions.

Subjects in the experimental groups were then provided a skills training session during which relaxation and cognitive therapy were presented either singly or in combination. An attention control group received no skills training. Groups were compared with regard to physiological changes reflected in heart rate, pain related behaviors and anxiety ratings. The following predictions were made:

1. Subjects receiving either relaxation or cognitive therapy components of the skills training package would show greater ability to cope with the procedure than subjects in the attention control treatment condition. Coping ability was defined as statistically significant differences on the dependent measures. Specifically, lower anxiety ratings, lower pain ratings, lower estimates of procedure duration, lower magnitude of heart rate change, and lower frequency of gross body movements and verbalizations, were considered indicators of effective coping.

2. Subjects receiving both relaxation and cognitive training would demonstrate greater coping ability than subjects receiving either relaxation or cognitive therapy alone.

Method

Subjects

The subjects were volunteers recruited from the patient population of a private outpatient medical facility in Dallas, Texas. All patients were being scheduled to receive a series of epidural steroid injections for the treatment of cervical or lumbar pain. As a large portion of the patients served by this facility are Spanish-speaking, all instructions provided were available in both English and Spanish. An information sheet was given to each potential subject explaining the nature of the experiment and giving instructions to be followed should the patient choose to volunteer for the study (Appendices A and B).

The first 80 subjects to volunteer were randomly assigned to four groups including a cognitive therapy plus relaxation training group, a cognitive therapy group, a relaxation training group, and an attention control group. Of those completing the experiment, 53 were male and 27 were female. Subjects consisted of 39 of Hispanic origin, 32 whites, and 9 blacks. The groups were counterbalanced according to the sex of the subjects in order to control for potential differences in responses to the procedure

resulting from this variable. Informed consent was obtained from each subject during the training session prior to receiving training instructions (Appendices C and D).

Instruments

All training instructions were recorded on cassette tape and played on a Panasonic Slim Line IV cassette recorder. Heart rate was measured with a Lafayette Instruments Heart Rate Monitor (Model 77065). This instrument monitors pulse from the index finger using a photoconductive transducer and averages beat-to-beat rate, providing a digital reading each second. Subjects were instructed not to move the hand to which the monitor was attached.

Procedure

All subjects attended a 30 minute training session immediately prior to the procedure. First, the subject was provided an explanation of the experiment (Appendices A & B) and asked to sign the informed consent form giving permission to be included in the experiment (Appendices C and D). Subjects were then presented an audiotape recording in which a narrator related the lumbar epidural injection procedure and rationale, and described the various physical sensations experienced by patients undergoing the procedure. Various emotional responses of patients to the procedure were presented followed by a discussion of research suggesting that both physiological arousal and the patient's

cognitions may impact upon the level of discomfort experienced during the procedure (Appendices E and F). Next, a baseline heart rate was recorded and subjects were asked to complete a preinjection anxiety questionnaire (Appendices G and H).

Cognitive Therapy Condition. Twenty subjects were then given training for making positive self statements prior to, during, and after the procedure. Audiotaped instructions first explained how making positive self statements could help the patient remain calm and control his level of distress. Subjects were then instructed to complete a worksheet which provided a sample list of coping self statements from which they could generate a list of self statements to be used in rehearsal and committed to memory (Appendices I and J). This sample list was adapted from Meichenbaum (1977).

Following their exposure to cognitive training, subjects in this condition were provided narrated information via audiotape on the topic of stress, but containing no specific information on controlling emotional responses (Appendices K and L). These instructions were of equivalent length to the relaxation instructions provided subjects in other treatment conditions, and were included as an attention control component.

Relaxation Training. Twenty subjects were provided relaxation training. Tensing and relaxing instructions

adapted from Rimm and Masters (1974) were presented via audiotape recording (Appendices M and N). During presentation of relaxation instructions the trainer modelled the tensing and relaxing exercises.

Following their exposure to relaxation training subjects in this condition received audiotape instructions of equal length to the cognitive training instructions during which a narrator discussed how certain styles of coping with stress may contribute to disease states. Subjects were then instructed to complete a Social Readjustment Rating Scale. This material adapted from Mason (1980) contained no specific instructions for controlling emotional responses (Appendices O and P). These instructions were provided as a control for the cognitive training instructions and task to which subjects in other conditions were exposed.

Cognitive Therapy Plus Relaxation Condition. Twenty subjects assigned to this condition were exposed to the cognitive and relaxation therapy procedures as summarized above. No control procedures were presented during this training procedure.

Attention Control Condition. Twenty subjects were assigned to the attention control condition in which they were exposed to the two control treatment components which are described above and contained in Appendices O, P, K and L. Subjects in this condition were provided no specific

instructions for controlling emotional or behavioral responses in the other treatment conditions.

Following training sessions subjects in all treatment conditions were asked to complete a credibility questionnaire (Appendices Q and R) and heart rates were again recorded. Upon being escorted to the treatment room and positioned on the table the third heart rate reading was recorded. Following the procedure all subjects were asked to complete a post injection questionnaire (Appendices S and T) and the last heart rate recording was made.

Outcome Measures

The effectiveness of treatments was assessed by means of a variety of outcome measures similar to those used in the Kaplan et al. (1982) study. These measures included anxiety ratings, physiological changes, and behavioral observations.

Anxiety Ratings. Four ratings of anxiety were obtained for each subject. Two self ratings of anxiety were obtained from each subject, the first occurring before the training and the injection, and the second occurring after the injection. In addition, assessment of each subject's anxiety level was made by an observer in the treatment room (Appendix U) and the physician performing the procedure (Appendix V), both of whom were blind to the patient's assigned experimental condition.

Physiological Measures. Heart rate was chosen as an indirect measure of emotional arousal because it correlates fairly well with other measures of physiological arousal and can be monitored unobtrusively during the medical procedure under investigation. Heart rate data were collected four times for each subject. The first recording was a baseline prior to self control instructions. The second recording was made immediately following training but prior to the commencement of the lumbar epidural injection procedure. The third recording was made after the subject was prepped for his injection, but just prior to the injection. The last recording was made at the conclusion of the injection procedure.

Behavioral Measures. The trained observer who was blind to the subject's experimental condition was stationed in the treatment room. During her training prior to experimental data collection the observer was monitored by the trainer while recording patient behaviors. Training continued until there was 90% agreement in recordings made by the observer and trainer over three successive examinations.

The observer recorded any gross body movements which were not called for by the physician or technician. Gross body movements were defined as any significant movements of the limbs, head, or trunk. In addition the observer tallied recorded and categorized each subject's verbalizations. The

categories utilized were the same as those employed in the Kaplan et al. (1982) study and included (1) exclamations such as "ouch" and "ohh;" (2) stop instructions such as "please stop," "no more," and "i want out;" (3) self attributed distress such as "I can't take it," and "you're hurting me;" and (4) other verbalizations (Appendix U).

Credibility Measures. The credibility of each of the treatment interventions was assessed by means of a questionnaire administered to subjects following training and prior to the injection. This consisted of four questions asking subjects to rate the logic of the treatment, the confidence the subject had in utilizing the treatment, his level of confidence in recommending the treatment to others, and his willingness to use the treatment during the procedure. Responses were made on an 11-point scale (Appendices Q and R).

Results

Comparison of Credibility of Treatments.

The credibility of the four treatments is assessed by means of a four item questionnaire administered immediately following training and before exposure to the epidural injection. A two way multivariate analysis of variance (MANOVA) is performed on these items. Results indicates no significant main effects for the group factor on responses to these items (see Table W-1, Appendix W).

Comparison of Treatment Outcome

Heart Rate. A two way multivariate analysis of covariance (ANCOVA) is performed on the second, third and fourth heart rate observation with the first observation serving as covariate. No significant main effects are found for either the treatment group or observation factor (see Table W-2, Appendix W).

Behavioral Measures. Verbalizations are categorized as "exclamations", "stop instructions", "self distress", and "other verbalizations". Since no subject verbalized "stop instructions", this category is dropped from the analyses. Frequency tables for the remaining categories of behavioral observations are collapsed into three categories for use in chi-square analysis. One category comprises observations in which none of the respective behaviors was recorded. Those for whom 1 to 3 observations are recorded for a given behavior comprise a second category. Subjects yielding more than 3 observations of the behavior are included in the third category.

Significant main effects are obtained only for the "self distress" variable (chi-square = 9.35065, d.f. = 3, significance = 0.025). No significant main effects for groups is found on the remainder of the behavioral measures ("gross body movements:" chi-square = 7.96395, d.f. = 6, significance = 0.2408; "exclamations:" chi-square = 9.77778,

d.f. = 0.1343; "other verbalizations:" chi-square = 5.41489, d.f. = 6 significance = 0.4918).

Physician Questionnaire. Item one on the physician questionnaire consists of the question, "Did the patient experience any difficulty in tolerating the injection." Results are analyzed by means of chi-square. Differences among treatment group distributions on this variable are not significant (chi-square = 6.31579, d.f. = 3, significance = 0.097).

Pain, Anxiety, and Duration. The remaining dependent variables are derived from subject self-report data, including average pain, most severe pain, treatment usefulness, and anxiety ratings, anxiety ratings by the observer and physician, and duration of procedure recordings made by the observer. These data are analyzed by means of a multivariate analysis of variance. No significant main effects are found for the group factor (Table W-3, Appendix W).

Discussion

Relaxation training and cognitive therapy were evaluated separately and in combination for their effects upon coping during a noxious medical procedure. Cervical and lumbar epidural steroid injections were demonstrated to produce no significant change in heart rate. Likewise, relaxation and cognitive therapy, both singly and in combination, produced no significant impact upon heart rate,

anxiety ratings, and most behavioral measures. Only on self-distress verbalizations did subjects in the experimental groups appear to respond more favorably than subjects in the attention-control groups. By comparing these results with those of previous investigations some important considerations for future research into aversive medical procedures may be obtained.

These results contrast with those of Kaplan, et al. (1982) who reported significant reductions in anxiety measures, body movements, and verbalizations for sigmoidoscopy patients exposed to cognitive and relaxation preparations as compared with those in an attention control group. Other investigations supporting the efficacy of relaxation and cognitive training procedures utilized analog stressors in laboratory experiments (Bobey & Davidson, 1970; Hackett et al., 1979; Horan et al., 1977). The present results are, however, consistent with several other investigations in which relaxation and cognitive therapy were found to be ineffective in controlling clinical pain (Fuller et al., 1978; Postlethwait et al., 1986; Tan and Poser, 1982). Several possible explanations for this apparent discrepancy are suggested.

First, it has often been suggested that qualitative differences between clinical and analog pain could account for such differences in treatment outcome (Beecher, 1959; Over, 1980; Postlethwait et al., 1986). Laboratory induced

pain is of relatively short duration and controlled intensity, and does not involve tissue damage, nor is it perceived as posing a threat to life or normal physical functioning. Postlethwait et al. (1986) argued that in the case of more threatening medical procedures such as the coronary artery graft surgical procedure, relaxation training and cognitive training may simply not be powerful enough strategies to affect outcome measures.

The Kaplan et al. (1982) investigation, while categorized as a clinical investigation, may have more in common with the laboratory experiments than the Postlethwaite et al. (1986) experiment and the present investigation. The sigmoidoscopy procedure utilized by Kaplan et al. involved the insertion of a small scope into the anal cavity to examine the colon for signs of pathology. This procedure, while undoubtedly producing some degree of embarrassment and discomfort, does not involve pain or physical threat to the extent of the coronary artery graft procedure employed in the Postlethwait et al. investigation. Likewise, subjects in the present experiment having previously sustained debilitating spinal injuries, likely approached the epidural injection procedure as a potentially threatening and painful ordeal as contrasted with the relatively less painful sigmoidoscopy. Thus, more painful and threatening medical procedures may call for more

powerful psychological interventions than those utilized in the present investigation.

Next, the nature of the clinical population under investigation may play a role in treatment outcome. The present experiment was directed toward patients of a pain center. Virtually all of these subjects had been suffering from pain for a period of time prior to their exposure to the noxious medical procedure. It is likely that many of these individuals, particularly those in the chronic phase, had had considerable previous experience coping with pain and, therefore, may have already developed preferred coping skills for managing their pain and/or habituated to some degree to pain and discomfort. Consequently, being prescribed a specific strategy or combination of strategies with such limited opportunity to rehearse prior to exposure to the aversive procedure may have had the effect of interfering with or at least failing to enhance their normal coping skills.

Alternately, spontaneous use of coping skills by subjects in the attention control group could possibly have offset otherwise detectable benefits obtained by subjects in the experimental groups. For example, the preparatory information provided all subjects in the present investigation may have enhanced subjects' coping abilities to the extent as to reduce or eliminate effects attributable to relaxation and cognitive therapies. As reviewed above,

preparatory information alone can be a fairly potent factor in the enhancement of coping and/or the amelioration of discomfort during exposure to noxious stimuli (Fuller, et al., 1978; Johnson, 1973; Johnson, et al., 1975; Johnson & Leventhal, 1974; Staub and Kellest, 1972). It is reasonable, therefore, to speculate that preparatory information provided in all treatment groups may have had similar effects, thereby reducing the available range of potential treatment effects. At least one investigation provided evidence that information derived from prior experience may reduce differences in outcome between experimental and control groups (Padilla, Grant, Rains, Hansen, Bergstrom, Wong, Hanson and Kubo, 1981). Contrary evidence is provided by Kendall, Williams, Pechacek, Graham, Shisslak and Herzoff (1979), however, who found that such information derived from prior experience with cardiac catheterization facilitated behavioral intervention.

The notion of spontaneous use of coping skills by subjects was earlier advanced by Tan and Poser (1982). It was further suggested that the duration and number of training sessions made available to subjects might be an important mediator of treatment effects. It is possible that the relatively brief training exposure in the current investigation was insufficient to affect most outcome measures. The length of recorded relaxation and cognitive training instructions used in the present investigation were

9 minutes, 32 seconds and 1 minute, 25 seconds respectively. Patients receiving cognitive instructions were allowed an additional 8 to 12 minutes beyond that for the purpose of writing and rehearsing positive self statements. It is possible that by extending the number and/or duration of training sessions, more dramatic treatment results might be obtained. Kaplan et al. (1982) do not report the length of training exposure utilized in their investigation. Thus, future research on coping with stressful medical procedures might examine the effect of duration and trials of training exposure upon outcome.

An issue related to the number and duration of training exposures is that of the practicality and cost-effectiveness of preparatory interventions in a clinical setting. In order for these procedures to be applied within a medical setting the relative cost of staff and patient time and effort expenditure must be balanced against the potential benefit to the patient of obtaining preparatory information and training. It is questionable whether, for example, the experimental treatments utilized in the present investigation, although brief, would be justifiable for routine delivery in an applied medical setting.

Another consideration in the development of informational and skills training interventions for medical patients is the role of individual differences in predispositions to specific coping strategies as mediators

of treatment outcome. As noted above, chronic pain patients might be expected to respond differently to a brief exposure to a noxious procedure than patients with more limited experience with pain. Differences in coping styles and personality variables undoubtedly play a role in determining an individual's amenability to a given intervention strategy. Anecdotal observations during the present investigation suggest that variables such as culture, class, sex, educational level, and previous exposure to coping skills training may be important considerations in the selection of skills training or skills enhancement protocols. The identification of such differences in coping remains an area for future investigation. Likewise, for pain patients such as those in the present investigation, the effect of length of chronicity upon coping warrants further investigation. A variety of new instruments are currently being developed for the purpose of measuring individual differences in coping styles (Krantz, Baum, & Wideman, 1980; Lamping, 1985; Miller, 1987).

Consideration of the role of individual differences raises important issues concerning the general applicability of self control strategies to patient populations. Many theories which have guided past research on coping with aversive medical procedures have included the assumption that providing individuals with greater prediction and control over such events is a way of reducing stress.

Theories such as information seeking (Berlyne, 1960), preparatory set (Perkins, 1968), helplessness (Seligman, 1975), and safety signal (Seligman, 1968) have advanced this notion. It is conceivable, however, that for some individuals information can be the effect of increasing stress and, given the opportunity, some would choose not to have predictability and control opportunities. This notion has received some support in the literature (Averill & Rosenn, 1972; Efran, Chorney, Ascher & Lukens, 1984). It is possible that individual differences in coping styles among subjects in the present investigation may have served to reduce group effects by the inclusion within the group of subjects who are less amenable to the strategies provided (see Ludwick-Rosenthal & Nefeld, 1988).

As suggested above, by extending the number and duration of training sessions, it may be possible to enhance the effects of coping skills training. Furthermore, it is likely that integrating psychological interventions more fully into long-term medical treatment protocols might enhance their acceptance and credibility among patient populations, leading in turn to greater compliance and utilization of these interventions, and thus, greater benefits during aversive medical procedures.

In summary, the present investigation was designed to evaluate the efficacy of relaxation training and cognitive therapy as self-control treatments for the enhancement of

coping during a noxious medical procedure, the epidural steroid injection. The first prediction that subjects in the experimental groups would demonstrate greater coping ability than subjects in the control condition received only marginal support. The second prediction that subjects receiving both relaxation and cognitive therapy would demonstrate greater coping ability than subjects receiving either treatment alone was not supported. Improvements in methodology are suggested and areas for future research on coping with aversive medical procedures are recommended.

APPENDIX A

INVITATION TO PARTICIPATE IN A SCIENTIFIC EXPERIMENT

Invitation to Participate in a Scientific Experiment

You are invited to participate in an experiment designed to examine the effectiveness of various interventions to help patients cope with epidural steroid injections. Previous research has shown that patients given information and training prior to undergoing a stressful medical procedure appear better able to cope with it. If you choose to participate you will need to appear for the training 45 minutes prior to the time you would ordinarily appear. Training will consist of listening to taped instructions explaining the details of the epidural injection procedure and information intended to enhance your coping ability. You will be asked to complete a brief questionnaire prior to and immediately following the procedure.

Your participation in this experiment is strictly voluntary and is not being required by your physician. Your involvement will be treated as confidential. The information obtained will prove helpful in designing interventions in the future to help patients cope with stressful medical procedures.

If you choose to participate in this experiment please sign the Informed Consent Agreement and return it to the secretary. If you have any questions, please feel free to contact me.

Sincerely,

Michael S. Catalanello, M.S.

418-1986

APPENDIX B

CONVOCATORIA PARA PARTICIPAR IN UN EXPERIMENTO CIENTIFICO

Convocatoria Para Participar
En Un Experimento Cientifico

Usted esta invitado a participar en un experimento disenado para examinar la efectividad de varias intervenciones que ayudan a pacientes a enfrentarse a las inyecciones de esteroides en la espina dorsal (raquea). Una investigacion previa ha demostrado que los pacientes a quienes se les ha dado informacion y entrenamiento antes de someterse a un procedimiento medico fatigoso, aparentan poder enfrentarse con mayor facilidad a este experimento.

Si usted desea participar, debera llegar al entrenamiento 45 minutos antes de la hora en que acostumbra llegar. El entrenamiento consistira en escuchar instrucciones grabadas que explican los detalles del procedimiento de las inyecciones de esteroides en la espina dorsal, ademas de informacion destinada a incrementar su habilidad para enfrentarse a esta. Se le pedira que llene un breve cuestionario antes e inmediatamente despues del examen.

Su participacion en este experimento es estrictamente voluntaria y no es requerida por su medico. Su involucramiento sera confidencial. La informacion obtenida sera util en el diseno de futuras intervenciones para ayudar a pacientes a enfrentarse a procedimientos medicos fatigosos.

Si decide a participar en este experimento, favor de firmar el Acuerdo de Consentimiento Informado y regreselo a la secretaria. Si tiene preguntas, favor de comunicarse conmigo.

Atentamente,

Michael S. Catalanello, M.S.

418-1986

APPENDIX C
INFORMED CONSENT AGREEMENT

legally appointed guardian. If the subject is unable to write his name, the following is legally acceptable:

John H. Doe (his X mark) and two (2) witnesses.

APPENDIX D
ACUERDO DE CONSENTIMIENTO INFORMADO

Acuerdo De Consentimiento Informado

Yo, _____, por este medio, le doy consentimiento a Michael S. Catalanello y asociados para llevar a cabo o supervisar el siguiente procedimiento y tratamiento investigativo: registrar los latidos del corazon, y entrenamiento de tecnicas cognoscitivas y de comportamiento para el control de ansiedad y de malestar. Yo comprendo que el uso de los procedimientos arriba descritos, utilizados, para el control de ansiedad, es experimental, pero si son exitosos, puedo suponer que obtendre algun grado de control sobre mi reaccion a situaciones fatigosas o de tension extrema. Tambien comprendo que esta investigacion no afectara ni interferira con mi diagnostico o tratamiento medico.

Yo tengo una idea clara y comprendo la naturaleza y proposito del procedimiento o tratamiento, la incomodidad o riesgos que involucra y la posibilidad de que puedan surgir complicaciones. Yo comprendo que el procedimiento o tratamiento a llevarse a cabo es investigativo y que yo puedo retirar mi consentimiento para participar en el. Con este conocimiento, y habiendo recibido esta informacion y respuestas satisfactorias a mis preguntas, yo voluntariamente doy mi consentimiento para que se lleve a cabo el procedimiento o tratamiento descrito arriba.

	_____	FECHA
FIRMA: _____	TESTIGO	FIRMA: _____
		SUJETO
		o
FIRMA: _____	TESTIGO	FIRMA: _____
		PERSONA RESPONSABLE

		PARENTEZCO

Instrucciones Para Personas
Autorizadas Para Firmar

Si el sujeto no es competente, la persona responsable sera el guardian legal o el representante legal autorizado. Si el sujeto es menor de edad (menor de 18 anos de edad), la persona responsable es la madre o padre o el guardian

legal designado. Si el sujeto no puede escribir su nombre, lo siguiente es legalmente aceptable:

John H. Doe (su marca "X") y dos (2) testigos.

APPENDIX E
GENERAL INTRODUCTION

General Introduction

You are about to undergo an epidural injection. "Epidural" refers to the space within the vertebra of the spine into which the steroid injection will be made. This procedure is a common treatment for pain resulting from a condition called sciatica.

Sciatica consists of inflammation of one of the nerve roots of the sciatic nerve which travels through the epidural space associated with the vertebra in your back. Inflammation of this nerve root can result in pain which radiates from the low back into the buttocks and the legs. The pain radiates down along the distribution of the damaged nerve root.

By injecting an antiinflammatory steroid into the epidural space, your doctor wishes to reduce the inflammation of the nerve root. As this occurs, the diameter of the nerve root diminishes, thus allowing free movement of the nerve past any obstruction. Free movement of the nerve means reduction or elimination of pain.

If damage to the spine is significant, a narrowing of the passage through which the nerve must travel may have occurred. If a narrow passage restricts free movement of the nerve root, inflammation may recur with a return of pain symptoms. However, when damage to the spine is relatively minor and there is no significant impediment to free movement of the nerve root following reduced inflammation, relief from pain may be permanent. Epidural injections are preformed at least twice on each patient, with injections occurring about a week apart. Occasionally, however, more injections may be needed.

Your epidural injection will be performed by your physician who is a medical doctor specializing in anesthesiology and pain management. Before the procedure you will be asked to remove your clothing (except for your underwear) and wear a paper gown. You will be seated on a treatment table and provided with another paper drape. The doctor will test your reflexes with a small rubber hammer and interview you concerning any changes in your condition since your last visit. During this time he may review your medical records including previous test results and progress notes.

Next, the doctor will untie your gown to expose your back and ask you to turn on your side with your back to him and your knees bent up. He will palpate your spine to locate the correct spot for the injection. Then he will use antiseptic swabs to cleanse and sterilize the area of and around the site where the injection is to be made. Another sterile drape with a hole cut out of the center will be placed over your back with the hole lined up with the area which was cleansed.

Two injections will be made to anesthetize or numb the skin and the tissue underneath. Another needle is then introduced through the numb area and advanced to the epidural space.

Once the needle has reached the epidural space, the steroid solution is slowly injected. The needle is then withdrawn and a sterile bandage is placed over the injection site. You will then be asked to change your position and lie on your back. You will be allowed to rest for about ten minutes, after which you will be asked to walk around the office for another 10 or 15 minutes or until the doctor is satisfied that there are no ill effects.

Patients undergoing an epidural injection report varying degrees of discomfort with the procedure. Some patients experience apprehension or fear regarding the procedure. Occasionally when the needle is inserted into the spine, the patient may become startled or experience burning or mild pain. If you need help dealing with discomfort or pain during the procedure, feel free to inform the doctor. If necessary he can inject additional local anesthesia to help reduce discomfort and make the procedure easier for you to tolerate. Let the doctor know of any difficulty you may be having.

Research has shown that patients' reactions to stressful events such as epidural injections can be influenced by two major elements. The first element is his or her level of physiological arousal. This may include increased heart rate, sweaty palms, rapid breathing, increased muscle tension, etc. The second element which influences patients' reaction to the procedure is the anxiety provoking thoughts or "self statements" the person is generating regarding the procedure. By controlling your physiological arousal and changing the self statements which

are occupying your mind during the procedure, you can lessen or eliminate the discomfort normally experienced.

APPENDIX F
INTRODUCCION GENERAL

Introduccion General

Usted esta a punto de someterse a una inyeccion epidural (raquea). El termino "raquea" se refiere al espacio dentro de la vertebra de la espina en el cual se aplicara la inyeccion de esteroides. Este procedimiento es un tratamiento comun para el dolor que resulta de una condicion llamada "ciatica."

La ciatica consiste en la inflamacion de la raiz de los nervios que van al nervio ciatico, el cual atreviesa el espacio epidural asociado con la vertebra en la porcion baja de su espalda. La inflamacion de esta raiz de nervios puede resultar en un dolor que irradia desde la parte baja de la espalda a las nalgas y piernas. Este dolor irradia a lo largo de la distribucion de la raiz de los nervios danados.

Al inyectar un esteroide antiinflamatorio en el espacio epidural, su medico desea reducir la inflamacion de la raiz del nervio. Al tiempo que esto sucede, el diametro de la raiz del nervio disminuye, permitiendo asi el movimiento libre del nervio. El movimiento libre del nervio significa reduccion o eliminacion de dolor.

Si el dano a la espina dorsal es significativo, es posible que se haya estrechado el pasaje por el cual debe atrevesar el nervio. Si un paso estrecho restringe el movimiento libre de la raiz del nervio, puede recurrir la inflamacion junto con sintomas de dolor. No obstante, cuando el dano a la espina es relativamente menor y no hay un impedimento significativo para el movimiento libre de la raiz del nervio, junto con una menor inflamacion, puede ser permanente el alivio del dolor. Las inyecciones se aplican cuando menos dos veces en cada paciente, una por semana. Sin embargo, ocasionalmente mas inyecciones seran necesarias.

La inyeccion epidural se la pondra su medico, quien es un doctor en Medicina, especializado en anestesiologia y manejo de dolor. Antes del procedimiento, necesitara quitarse la ropa (con excepcion de su ropa interior) y debera ponerse una bata de papel. Debera sentarse en una camilla de tratamiento y se le dara una sabana de papel. El medico probara sus reflejos con un pequeno martillo de hule y le entrevistara concerniente a algunos cambios en su condicion desde su ultima visita. Durante este tiempo el

podra revisar sus archivos medicos incluyendo los resultados de visitas previas y notas de progreso.

Enseguida el medico le desatara su bata para exponer la parte baja de su espalda y le pedira que se acueste de lado dandole la espalda a el y con sus rodillas dobladas hacia arriba. El palpara su espina para localizar el lugar correcto para la inyeccion. Entonces el utilizara cotonetes antisepiticos para limpiar y esterilizar el area alrededor del lugar en donde se colocara la inyeccion. Se le dara otra sabana esteril con un agujero cortado en el centro, el cual se colocara sobre su espalda con el agujero colocado en el area que se limpio.

Dos inyecciones se aplicaran para anestesiar o adormecer la piel y el tejido debajo. Otra aguja se introducira a traves del area adormecida hacia el espacio de la raquea.

Una vez que la aguja haya alcanzado el espacio de la raquea, la solucion esteroide se inyecta lentamente. La aguja se saca y un curita esteril se coloca sobre el lugar de la inyeccion. Entonces le pedirán que se cambie de posicion. Se tendra que acostar boca arriba. Le permitiran descansar aproximadamente 10 minutos despues de lo cual le pedirán que camine alrededor de la oficina por 10 o 15 minutos mas o hasta que el doctor este seguro que no hubo una mala reaccion.

Pacientes quienes se han sometido a este tipo de inyeccion reportan varios grados de incomodidad con este procedimiento. Algunos pacientes experimentan aprension o temor con respecto al procedimiento. Ocasionalmente, cuando se inserta la aguja en la espina, el paciente puede sentirse asustado por experimentar una sensacion de ardor o de dolor moderado. Si necesita ayuda para enfrentarse al dolor o incomodidad durante el procedimiento, hagase lo saber al doctor. Si es necesario, el podra inyectarle una cantidad adicional de anestesia local para ayudar a reducir la incomodidad y para que usted pueda tolerar el procedimiento con mas facilidad. Informe al doctor de cualquier dificultad que tenga.

Las investigaciones demuestran que la reaccion de pacientes a eventos de extrema tension tales como inyecciones pueden ser influenciadas por dos elementos principales. El primer elemento es su nivel de alerta fisiologico. Esto puede incluir un ritmo de corazon

acelerado, palmas sudorosas, respiración agitada, mayor tensión muscular, etc. El segundo elemento que influye en la reacción de los pacientes en cuanto al procedimiento, son pensamientos negativos. Controlar su alerta fisiológico y cambiando los pensamientos negativos que ocupan su mente durante el procedimiento puede disminuir o eliminar la incomodidad que experimenta normalmente.

APPENDIX G
PRETRAINING ANXIETY QUESTIONNAIRE

Pretraining Anxiety Questionnaire

Patient _____

Now I would like you to rate how anxious or nervous you feel right now. Do this by placing an "X" on one step of a ten step ladder. The top step, 10, is for extremely anxious, while the bottom step, 0, is for not anxious at all. The other steps represent degrees of anxiety between the two extremes. What number do you choose to represent your anxiety level?

	Extremely anxious	_____	10
		_____	9
		_____	8
<u>For Experimenter's Use</u>		_____	8
a. _____		_____	7
b. _____		_____	6
		_____	5
		_____	4
		_____	3
		_____	2
		_____	1
	Not anxious at all	_____	0

APPENDIX H
CUESTIONARIO DE ANSIEDAD PRELIMINAR

Questionario de Ansiedad Preliminar

Paciente _____

Ahora quisiera que clasificara el grado de ansiedad o nerviosidad que siente en este momento. Haga esto colocando una "X" en uno de los escalones de una escalera de 10. El escalon numero 0 representa nada de ansiedad. Los otros escalones representan grados de ansiedad entre los dos extremos. Que numero escoje usted para representar su nivel de ansiedad?

	Extremadamente Ansioso	_____	10
		_____	9
		_____	8
<u>Solo para uso del experimentador</u>		_____	7
a. _____		_____	6
b. _____		_____	5
		_____	4
		_____	3
		_____	2
		_____	1
	Nada de Ansiedad	_____	0

APPENDIX I
COGNITIVE COPING WORKSHEET

Cognitive Training

In order to cope successfully with your epidural injection you will need to formulate a set of self statements which will help you to remain calm and in control of your emotional response. Both maladaptive and adaptive responses may be produced by statements you say to yourself during the procedure. For example, a patient who tells himself, "I can't handle this" will likely make himself more upset and distressed than he might otherwise be. On the other hand, if a patient tells himself to "remain calm. I can handle the situation," he will be in a better position emotionally to cope with the procedure.

On your worksheet are a number of sample self statements designed to reduce your anxiety level and increase your body's ability to cope. Select those self statements which appear most useful for you personally and write them in the space provided. You may also wish to create your own self statements. Write your favorites, and when you are done begin rehearsing them as you await your turn in the treatment room. It will prove most useful to memorize those self statements which you select so that they will be available for your use during the procedure. As you rehearse, imagine that you are in the treatment room coping successfully with the procedure.

Cognitive Coping Worksheet

The following are some examples of self statements designed to enhance your coping ability during the epidural injection. Select those self statements which appear most useful to you personally and write them in the space provided. Feel free to generate your own self statements and include them in the list. As you begin rehearsing your list imagine that you are in the treatment room coping successfully with the procedure.

- I. Preparing for the procedure
 - A. What is it you have to do?
 - B. You can develop a plan to deal with it.
 - C. Just think about what you can do about it. That's better than getting anxious.
 - D. No negative self statements: Just think rationally.
 - E. Don't worry: worry won't help anything.
 - F. Maybe what you think is anxiety is eagerness to confront the procedure.
- II. Confronting and handling the procedure
 - A. Just "psych" yourself up - you can meet this challenge.
 - B. You can convince yourself to remain calm. You can reason your fear away.
 - C. One step at a time: You can handle the situation.
 - D. Don't think about fear; just think about what you have to do. Stay relevant.
 - E. These sensations are what the tape said you would feel. They're reminders to use your coping exercises.
 - F. This tenseness can be an ally; a cue to cope.
 - G. Relax; you're in control.
 - H. Ah, good.

III. Coping with the feeling of being overwhelmed:

- A. When fear comes, just pause.
- B. Keep the focus on the present. What is it you have to do?
- C. Label your fear from 0 to 10 and watch it change.
- D. You should expect your fear to rise.
- E. Don't try to eliminate nervousness totally; just keep it manageable.

IV. After the procedure:

- A. It worked; you did it!
- B. Wait until you tell your doctor (or family) about this.
- C. It wasn't as bad as you expected.
- D. You made more out of your fear than it was worth.
- E. Your damn ideas - that's the problem. When you control them you control your fear.
- F. You did it!

I. Preparing for the procedure: (Write your favorites from the previous list. Make up some of your own if you wish.)

II. Confronting and handling the procedure:

III. Coping with the feeling of being overwhelmed:

IV. After the procedure:

(Remember to rehearse these self statements as you await your turn in the treatment room).

APPENDIX J

HOJA DE TRABAJO DE ENFRENTAMIENTO COGNOSCITIVO

Entrenamiento Cognitivo

Para que usted pueda enfrentarse exitosamente a la inyección, usted deberá formular algunas preguntas que le ayudaran a permanecer calmado y en control de su reacción emocional. Tanto reacciones positivas como negativas pueden producirse por medio de frases que se dice a si mismo durante el procedimiento. Por ejemplo, un paciente que piensa, "no puedo soprotar esto," probablemente este mas desesperado de lo que normalmente seria. Por otra parte, si el paciente piensa, "calmate, yo puedo controlar esta situación," el estara en mejor posición emocional para afrentarse a la situación.

Puede encontrar una muestra de frases en su hoja de trabajo que estan disenadas para reducir su nivel de ansiedad e incrementar la habilidad de enfrentamiento de su cuerpo. Escoja aquellas frases que parezcan ser mas utiles para usted y escribalas en el espacio proporcionado para ese fin. Usted tal vez desee crear sus propias frases. Escriba sus favoritas y cuando haya terminado, empiece a practicarlas mientras espere su turno en el cuarto de tratamiento. Sera mas util memorizar las que haya seleccionado para que las tenga a la mano cuando las necesite durante el procedimiento. Mientras ensaya, imagine que usted se encuentra en el cuarto de tratamiento lidiando exitosamente con el procedimiento.

Hoja de Trabajo
de Enfrentamiento Cognoscitivo

A continuacion encontrara algunos ejemplos de frases disenadas para realizar su habilidad para enfrentarse durante la inyeccion epidural. Seleccione aquellas frases que parezcan serle mas utiles y escribalas en el espacio proporcionado para ese fin. Sientase libre de generar sus propias frases e incluyalas en la lista. Mientras ensaya su lista, imagine que usted se encuentra en el cuarto de tratamiento lidiando exitosamente con el procedimiento.

- I. Preparacion para el procedimiento.
 - A. Que es lo que tiene que hacer?
 - B. Puede desarrollar un plan para lidear con ello.
 - C. Solo piense en lo que puede hacer sobre ello. Eso es mejor que estar ansioso.
 - D. Ninguna frase negativa: Razone.
 - E. No se preocupe: El preocuparse no remediará nada.
 - F. Tal vez lo que cree ser ansiedad no es mas que el deseo de enfrentar el procedimiento.
- II. Confrontacion y manejo del procedimiento.
 - A. Prepárese mentalmente. Usted puede tomar este reto.
 - B. Puede convencerse así mismo de permanecer calmado. Razone y no se preocupe.
 - C. Paso a tiempo: Usted puede manejar la situación.
 - D. No piense en temor; solo piense en lo que tiene que hacer. Sea relevante.
 - E. Estas sensaciones son las que la cinta dijo que sentiria. Son mensajes para recordarle que utilice sus ejercicios para enfrentarse a la situación.
 - F. Esta tension puede ser un aliado; una señal para lidiar.
 - G. Relajese; usted esta en control.

- H. Que bueno!
- III. Lidiar con la sensacion agobiante.
- A. Cuando sienta temor, tome una pausa.
 - B. Enfoquese en el presente. Que es lo que tiene que hacer?
 - C. Califique su temor del 0 a 10 y vealo cambiar.
 - D. Puede esperar que su temor aumente.
 - E. No trate de eliminar totalmente el nerviosismo; solo mantengalo en un nivel regular.
- IV. Despues del procedimiento.
- A. Funciono! Lo hiciste!
 - B. Espere hasta que le cuente a su doctor (o familia) acerca de esto.
 - C. No fue tan malo como esperaba.
 - D. Fue mas el miedo que le tuviste al procedimiento.
 - E. Tus ideas estupidas, ese es el problema. Cuando las controlas, podras controlar tu temor.
 - F. Lo hiciste!
- I. En preparacion para el procedimiento: (Escriba sus favoritas de la lista previamente mencionada. Invente las suyas propias, si asi lo desea.)

II. Confrontando y manejando el procedimiento:

III. Enfrentandose a la sensacion de sentirse abrumado:

IV. Despues del procedimiento:

(Recuerde que debe ensayar estas frases mientras espera su turno en el cuarto de examen.)

APPENDIX M
RELAXATION EXERCISE

Relaxation Exercise

To prepare for your epidural injection you need to begin by lowering your level of physiological arousal through relaxation. Everyone has some skill in achieving a state of relaxation. Before receiving specific instructions for achieving relaxation take a few moments to relax as best you can . . .

Now you are going to learn to relax your tense muscles systematically, so that you can remain calm instead of anxious. The method requires tensing a particular set of muscles, then relaxing the same muscles . . . then tensing and relaxing the opposite set of muscles. We will begin with your hands. After we have completed relaxing your hands, we will relax your arms, and then your shoulders, and so on until your entire body is relaxed. If you have suffered any injury or have a physical disability that might result in pain or further injury were the associated muscle groups tensed, please inform the experimenter before beginning this phase of the training . . .

Make yourself as comfortable as possible. Allow all parts of your body to be completely supported by the chair. Begin by raising your arms and extending them out in front of you . . . now make a fist with both your hands . . . really hard . . . Notice the uncomfortable tension in your hands and fingers. Do it really hard and notice the feeling of discomfort, of tension which you are feeling in your hands . . . Now when I say relax, I want your hands to fall on your lap as if they were made of lead . . . just let them fall . . . now, relax . . . Notice how the tension and discomfort are draining from your hands . . . being replaced by sensations of comfort, and warmth, and pleasure. Notice how your hands feel now in comparison to what they felt like when you were tensing. Notice the contrast . . . See how much better it feels to be relaxed.

Now extend your arms like before. Bend your fingers backward, the opposite of making a fist. Do it really hard . . . notice the discomfort. Notice the tension . . . Now relax . . . Notice how different this state of relaxation feels from the sensations you experienced when you were tensing . . .

To tense your triceps muscles extend your arms forward bending them the wrong way . . . Build up the tension in your arms and discomfort for a few moments . . . Now relax and notice the difference . . . Notice how relaxed your triceps muscles are and how much more pleasant your arms feel now compared to when they were tensed . . . Now bend your arms up the opposite way and tense the opposing muscles . . . make it really hard . . . Notice the discomfort . . . Now relax . . . Notice how different your arms feel when they are relaxed.

Open your mouth as wide as possible . . . Notice the discomfort . . . Notice the tension . . . Relax . . . Allow your tongue to come to a comfortable position in your mouth . . . Now bring your tongue as far back into your throat as possible . . . Notice the discomfort . . . Now relax . . . Notice how much better this feels.

Open your eyes as wide as possible until your brow is visibly furrowed . . . build up the tension and attend to it . . . Relax . . . concentrate on allowing the tension to melt away more and more and notice the differences . . . Now close your eyes as hard as possible so that you are squinting in an exaggerated manner . . . Notice the tension . . . Relax, and allow your eyes to open, but only slightly while you continue to concentrate upon becoming more and more relaxed . . .

Take as deep a breath as possible . . . inhale even more deeply . . . relax . . . resume normal, smooth, comfortable breathing . . . Exhale until every drop of air leaves your lungs . . . Relax . . . Resume normal regular breathing . . .

With your shoulders resting against the chair, push the trunk of your body forward and arch your back . . . relax . . . Tense your buttock muscles so that your body is raised slightly from the chair . . . relax . . . lower your midsection by digging your buttocks into the seat of the chair . . . relax . . .

Now pull your shoulders back so that they are putting pressure on the back of your chair . . . Build up the tension and focus on the discomfort you feel . . . Now relax . . . Again notice how pleasant it is to be relaxed as compared to being tense . . . Now move your shoulders forward in an extreme position and build up the tension in

the opposing muscle group . . . Experience the tension and discomfort . . . Now relax . . . Notice how pleasant these muscles now feel . . .

Keep your shoulders straight and turn your head to the right, but to an extreme position . . . Focus on the sensations of tension in your neck . . . Relax . . . notice the contrast and how comfortable this state is in comparison . . . Now turn your head to the left to an extreme position . . . Build up the tension and focus on the discomfort that accompanies it . . . Now relax . . . allow your head to return to a comfortable position and experience the pleasant sensations which occur when you are relaxed . . . now bring your head forward until your chin digs into your chest . . . Focus on the tension . . . Now relax and notice the difference . . .

Open your mouth as wide as possible. Build up the tension and focus upon how it feels . . . Now relax . . . Notice how pleasant these muscles feel when they are relaxed . . . Now purse your lips in an exaggerated pout . . . Focus upon the tension and discomfort you are experiencing . . . Relax . . . Notice the contrast . . .

Extend your legs and raise your feet about six inches above the floor . . . Relax . . . allow your legs to fall to the floor . . . Pull in your stomach as hard as possible as if it were about to touch the backbone . . . Relax . . . Allow every muscle fiber in the stomach to become relaxed . . . Extend your stomach as if you were preparing for a punch in the abdomen . . . Relax . . . Allow every muscle fiber to relax . . .

With your legs supported, bend your feet so that your toes are pointed toward your head . . . Relax . . . With legs supported dig your toes into the soles of your shoes . . . Relax . . .

APPENDIX O
SOCIAL READJUSTMENT

Social Readjustment

Life changes, beneficial or detrimental, can be stress producing. Holmes and Rahe researched stress and statistically developed the patterns of certain typical life events, and the proportionate degree of stress they elicited. The ratings are related to the number and degree of health changes (disease) that occurred in the group of 7,000 people surveyed. Life changes are rated according to their stressfulness and the degree of readjustment required. Add up your score, based on the events that you have experienced over the past 12 to 18 months. If the total is over 150 you have been under a lot of stress, requiring a high degree of adaptation.

The significance of such life changes may depend on your own lifestyle. Taking out a mortgage for over \$10,000 may not be particularly stressful if you invest regularly in real estate; moving may be considerably more stress producing if you move only once every 20 years, than if you move all the time. Even positive events add to your stress level because you must adapt to a new situation. If you get married, all of your habit patterns (eating, sleeping, lifestyle) change. Your body has to adapt to these changes, and even though they are positive, this still adds stress.

<u>Event occurring within past 18 months</u>	<u>Value</u>	<u>Your Score</u>
Death of Spouse	100	_____
Divorce	73	_____
Marital Separation or End of Relationship	65	_____
Jail Term	63	_____
Death of Close Family Member	63	_____
Personal Injury, Illness, Abortion or Miscarriage	53	_____
Marriage	50	_____
Fired from Work	47	_____
Marital or Relationship Reconciliation	45	_____
Retirement	45	_____
Change in Family Member's Health	44	_____
Pregnancy	40	_____
Sexual Problems	39	_____
Addition of New Family Member	39	_____
Business Readjustment	39	_____

Change in Financial Status	38	_____
Death of a Close Friend	37	_____
Change to Different Line of Work	36	_____
Change in Number of Marital Arguments	35	_____
Mortgage or Loan over \$10,000	31	_____
Foreclosure of Mortgage or Loan	30	_____
Change in Work Responsibilities	29	_____
Son or Daughter Leaving Home	29	_____
Trouble with In-Laws	29	_____
Outstanding Personal Achievement	28	_____
Spouse Begins or Stops Work	26	_____
Starting or Finishing School	26	_____
Change in Living Conditions	25	_____
Revision of Personal Habits	24	_____
Trouble with Boss	23	_____
Change in Work Hours or Conditions	20	_____
Change in Residence	20	_____
Change in Schools	20	_____
Change in Recreation	19	_____
Change in Church Activities	19	_____
Change in Social Activities	18	_____
Mortgage or Loan under \$10,000	17	_____
Change in Sleeping Habits	16	_____
Change in Number of Family Gatherings	15	_____
Change in Eating Habits	15	_____
Vacation	13	_____
Christmas Season	12	_____
Minor Violation of the Law	11	_____
	Total	_____

If you have experienced stress under any of these situations, do you recognize the connection between the event, the symptoms of stress, and their effect on your general health? You may wish to offset the negative effects of the stress you have suffered, and are still suffering, by beginning a stress reduction program.

APPENDIX P
REAJUSTE SOCIAL

Reajuste Social

Los cambios en la vida, beneficiosos o perjudiciales, pueden producir la tension. Holmes y Rahe investigaron la tension y desarrollaron estadisticamente los modelos de algunos eventos tipicos en la vida, y el grado de tension proporcional que provocan. Los rangos estan relacionados al numero y grado de cambios en salud o (enfermedad) que ocurrieron en el grupo de las 7,000 personas entrevistadas. Los cambios en la vida estan calificados de acuerdo al grado de tension que provocan y al grado de reajuste que requieren. Totalice su puntuacion, basada en los eventos que usted ha experimentado durante los pasados 12 a 18 meses. Si el total es superior a 150, usted ha estado bajo mucha tension, requiriendo un alto grado de adaptacion.

La importancia de tales cambios en la vida depende de su propio estilo de vida. Sacando una hipoteca de mas de \$10,000.00 no debe ocasionar tanta tension si usted invierte regularmente en bienes raices; mudandose puede ocasionar mucha mas tension si solo se muda una vez cada 20 anos, en vez de mudarse constantemente. Aun eventos positivos pueden aumentar su grado de tension, porque debe adaptarse a una nueva situacion. Si usted se va a casar, todos sus habitos (comer, dormir, su estilo de vida) cambian. Su cuerpo tiene que adaptarse a estos cambios, y aun cuando sean positivos, estos aun aumentan el grado de tension.

Eventos Que Se Llevaron A Cabo En Los Pasados 18 Meses	Su Valor Puntuacion
Muerte de conyuge	100
Divorcio	73
Separacion matrimonial o el fin de una relacion	65
Servir una sentencia en la carcel	63
Muerte de un familiar cercano	63
Lesion personal, enfermedad, aborto, malparto	53
Matrimonio	50
Despedida del trabajo	47
Reconciliacion marital o de una relacion	45
Jubilacion	45
Cambio en la salud de un miembro de la familia	44
Embarazo	40

Problemas sexuales	39	_____
Arribo de un nuevo miembro de familia	39	_____
Reajuste empresarial	39	_____
Cambio de estado financiero	38	_____
Muerte de un amigo cercano	37	_____
Cambio a un diferente tipo de trabajo	36	_____
Cambio en numero de conflictos maritales	35	_____
Hipoteca o prestamo mayor a \$10,000.00	31	_____
Embargo de hipoteca o prestamo	30	_____
Cambio en responsabilidades laborales	29	_____
Hijo o hija dejando el hogar	29	_____
Problemas con suegros	29	_____
Logro personal sobresaliente	28	_____
Conyuge empieza o deja de trabajar	26	_____
Iniciar o terminar la escuela	26	_____
Cambio en condiciones de vida	25	_____
Revisión de hábitos personales	24	_____
Problemas con jefe	23	_____
Cambio en horas de trabajo o en condiciones laborales	20	_____
Cambio de residencia	20	_____
Cambio de escuelas	20	_____
Cambio en recreación	19	_____
Cambio en actividades de Iglesia	19	_____
Cambio en actividades sociales	18	_____
Hipoteca o prestamo menos a \$10,000.00	17	_____
Cambio en hábitos de dormir	16	_____
Cambio en el numero de reuniones familiares	15	_____
Cambio en hábitos de comer	15	_____
Vacaciones	13	_____
Epoca navidena	12	_____
Infracción menor de la ley	11	_____
TOTAL:		_____

Si usted ha experimentado tensión bajo cualquiera de estas situaciones, reconoce la conexión entre el evento, los síntomas de la tensión, y su efecto en su salud general? Usted tal vez desee desviar los efectos negativos de la tensión que ha sufrido, y que sigue sufriendo, iniciando un programa de reducción de tensión.

APPENDIX K
STRESS MONOLOGUE

Stress Monologue

You have the right to relax, to feel good, to be happy. You do not have to accept headaches, insomnia, backaches, indigestion, and other discomforts as irreversible facts of life. These physical complaints may be the way your body responds to stress, even if you don't realize you are experiencing it. The stress of modern life is real - there is no denying it. But, the way you respond is up to you. You can react to stress in a positive way and counteract the damage stress may be doing to your health.

Your stress response is the product of conditioned habits adopted early in life for coping with difficult and painful situations. It is possible to drop these seemingly protective and habitual responses which have become unquestionably harmful to your health and well-being. If stress is viewed as an insoluble problem, you are easily reduced to fretting and self pity; this just increases your tension and produces a vicious cycle from which there seems to be no escape. If stress is interpreted as a challenge, the mind and body respond with renewed vigor and creativity.

We have never been taught how to relax, how to take care of ourselves in a positive, nurturing way (not just going on a vacation or out for an expensive dinner). Twenty minutes of deep relaxation a day will aid your mental growth, improve your physical health, emotional stability, and possibly even increase your spiritual awareness. You will use your energy more efficiently, and have more time for your family, friends, and yourself. You will be on a more even keel, not on the roller coaster of life with its traumatic ups and downs. This does not lessen the great joys of life, but allows you to progress more evenly with less backsliding and distress.

How do you feel stress? As a pain in your back that's with you from your first cup of coffee in the morning to your last cigarette at night? As a migraine headache that propels you to the medicine cabinet? Your negative response to stress is individual, uniquely your own. The first step in reducing stress is in identifying your own unique stress response. Become more aware of the events that trigger it. What causes you the most distress? A mailbox full of unpaid bills? Your boss in his office reading the memo you just wrote? After you have recognized the situations that cause

you the most discomfort, listen to your body's signals and locate where you feel stress. We have desensitized ourselves to our bodies' messages until they literally reach out and shake us. Do you treat symptoms as warning signals, or barriers to be conquered? Do you consider your body a reliable friend or disabling foe? When your stress level is too high, do you stop and consider how to lower it? We must step back inside our bodies to change this pattern of neglect, to treat these signals and messages as helpful guides and tools. Illness or pain may be trying to tell you something - but it is up to you to pick up the signals and decode the message.

Prolonged, unrelieved stress has been proven to cause organic disease. Your daily tension headache may be the prelude to more serious dysfunction, and even to the eventual breakdown of your immunological system. Practicing stress reduction on a regular basis can help you cope with pain, prevent disease, and improve the quality of your life.

Stress is inherent in every healthy form of life; it is the force exerted by any one thing against another. Stress is, always has been, and always will be, a part of being alive. People cannot maintain an erect posture without the tension of opposing muscles that balance each other and keep the skeletal system erect. Eating puts some stress on the digestive system; active exercise puts stress on the cardiovascular system. Your immunological system is constantly killing off bacteria in your body. Subtle balances shift, and tension between one force and another is inherent in being alive. With normal stress, the overall physiological equilibrium is maintained. We are not concerned with such essential stress or tension, but with undesirable, excess tension that threatens the body's well-being. Everyone suffers the effects of this excess stress; what is important is how you learn to cope with it.

Let's look at the historical source of the stress response. The body responds most extremely to the most extreme stress; a threat to the survival of the organism. If placed in a life-threatening situation, an organism automatically responds with the fight or flight response, identified by Dr. Walter Cannon in the 1930s. The stress response is an instinctual reaction under a life-threatening situation; all animals respond automatically when the danger is real.

Hans Selye, an endocrinologist and the world's leading researcher into the effects of stress upon the body, stated his theory in The Stress of Life. When the brain perceives stress, either consciously or unconsciously, the message is transmitted to the hypothalamus. This switching station carries signals in and out of the brain. The hypothalamus sends impulses to the pituitary gland, the master endocrine gland. The pituitary releases hormones which stimulate other glands, which in turn release other hormones such as adrenaline. A life-or-death situation may trigger this response, but the brain may respond in a similar way to persistent lower levels of stress. If a stress response is chronic, the constant presence of stress hormones begins to wear down the body's immunological system; whatever part of the body is weakest will show signs of dysfunction first. Selye calls the body's total effort to cope with stress, and its process of adapting, the general adaptation syndrome. As the immunological system is weakened, the body becomes more susceptible to infections and diseases, even cancer. For example, in the case of cancer, the body would normally eliminate a mutant cell; but if the system is dysfunctional, the cell may take hold and develop into a tumor. Hormone balance may also be upset, so that the body over compensates when it swings back from a stress response, turning against its own healthy tissue.

So, stress is related even though seemingly indirectly, to many, maybe even most, diseases. Over the years, continually triggering the stress response for inappropriate situations causes wear and tear on the body. We may not be conscious of the stress until we are confronted with pain. Stress reduction techniques may not only prevent or alleviate a tension headache or other stress-related complaints, but also act to prevent future disease.

APPENDIX L
MONOLOGO DEL STRESS

Monologo del Stress

Usted tiene el derecho a relajarse, a sentirse bien y a ser feliz. No tiene que aceptar dolores de cabeza, insomnio, dolores de espalda, indigestion ni otros malestares como hechos irreversibles de la vida. Estas quejas fisicas pueden ser la manera en que su cuerpo responde a la tension, aun cuando no este consciente de que lo esta experimentando. La tension de la vida moderna es real - no se puede negar. Pero, la manera en que responde depende de usted. Usted puede reaccionar de una manera positiva y contrarrestar el dano que la tension hace a su salud.

Su reaccion a la tension es el producto de habitos condicionados, adoptados temprano para lidiar con situaciones dificiles y dolorosas. Es posible desechar estas reacciones protectoras y habituales que le han hecho un dano indudable a su salud y bienestar. Si la tension se considera como un problema insoluble, usted facilmente se deja vencer por la auto-compasion y la preocupacion. Esto solo le incrementa su tension y produce un circulo vicioso del cual no podra escapar. Si la tension se considera como un reto, el cuerpo y la mente responden con renovado vigor y creatividad.

Nunca se nos ha ensenado como relajarnos, como cuidarnos en una manera positiva (no solo saliendo de vacaciones o a una cena costosa). Veinte minutos de relajamiento profundo diario ayudaran a su crecimiento mental, mejoraran su salud fisica, estabilidad emocional, y posiblemente hasta incrementara su conciencia espiritual.

Usted utilizara su energia mas eficientemente, y tendra mas tiempo para su familia, amigos y para si mismo. Estara bien equilibrado, no en la montana rusa de la vida con sus correspondientes subidas y bajadas traumaticas. Esto no disminuye los grandes gozos de la vida, solo que le permiten progresar uniformemente con menos reincidencia y angustia.

Como se siente la tension? Como es que un dolor en su espalda esta presente desde la primera taza de cafe hasta su ultimo cigarrillo nocturno? Como es que un dolor de migrana lo manda al botiquin de medicina? Su reaccion negativa a la tension es individual, solo suya. El primer paso para reducir la tension es identificar su reaccion a ella. Este mas consciente de los eventos que la desencadenan. Que es lo que mas le angustia? Un buzón lleno de cuentas por pagar? Su jefe sentado en su oficina leyendo el memorandum que usted acaba de escribir? Despues que usted haya reconocido las situaciones que le causan mas incomodidad,

escuche las senales de su cuerpo y localice el lugar en donde siente tension. Nos hemos insensibilizado a los mensajes de nuestros cuerpos hasta que literalmente nos sacuden. Trata sintomas como senales de advertencia o como barreras para ser conquistadas? Considera su cuerpo como un amigo de confianza o como un enemigo? Cuando su nivel de tension es demasiado alto, se detiene y considera maneras para disminuirlo? Debemos ver dentro de nosotros mismos para cambiar este patron de negligencia, para tratar estas senales y mensajes como guias y herramientas utiles. La enfermedad o el dolor pueden estar tratando de decirle algo - pero le toca a usted recoger las senales y decifrar el mensaje.

Se ha comprobado que la tension prolongada y sin alivio puede ocasionar enfermedades organicas. Su dolor de cabeza diario (de tension) puede ser el preludio de una seria disfuncion, y tal vez a la descomposicion eventual de su sistema inmunologico. El practicar la reduccion de tension de una manera regular, puede ayudarle a lidiar con el dolor y a prevenir enfermedad al igual que mejorar la calidad de su vida.

La tension es propia en cada forma de vida saludable. Es la fuerza ejercida por cualquier cosa en contra de otra. La tension es, ha sido, y siempre sera, parte de nuestro vivir. Las personas no pueden mantener una postura erguida sin tensionar los musculos opuestos que se equilibran mutuamente y mantienen el sistema esquelético erguido. El comer pone algo de tension en el sistema digestivo. El ejercicio activo pone tension en el sistema cardiovascular. Su sistema inmunologico esta luchando constantemente contra las infecciones en su cuerpo.

Este equilibrio puede desviarse y la tension entre una fuerza y otra es inherente para seguir vivo. Con tension normal, el equilibrio fisiologico general se mantiene. No nos preocupa esta tension esencial, sino con la tension excesiva indeseable que amenaza el bienestar de su cuerpo. Todos sufrimos los efectos de esta tension excesiva. Lo importante es como aprender a combatirla.

Veamos la fuente historica de la reaccion a la tension. El cuerpo responde extremadamente a la tension extrema. Una amenaza a la supervivencia del organismo. Si estuviera en una situacion de vida o muerte, el organismo automaticamente responde con la reaccion de pelea, identificado por el Dr. Walter Cannon en los años 30. La reaccion a la tension es una reaccion instintiva bajo una situacion amenazante a la vida. Todos los animales responden automaticamente cuando el peligro es real.

Hans Selye, un endocrinólogo y el investigador número uno del mundo en los efectos de la tensión en el cuerpo, afirmó su teoría en "La Tensión de la Vida." Cuando el cerebro percibe la tensión, consciente o inconscientemente, el mensaje se transmite al hipotálamo. Esta estación cambiante envía señales dentro y fuera del cerebro. El hipotálamo envía impulsos a la glándula pituitaria, la glándula endocrina maestra. Esta glándula suelta hormonas que estimulan a otras glándulas, que a su vez, sueltan otras hormonas tales como adrenalina. Una situación de vida o muerte puede desencadenar esta reacción, pero el cerebro puede responder de manera similar a niveles inferiores persistentes de tensión. Si la reacción a la tensión es crónica, la constante presencia de hormonas de tensión empiezan a deteriorar el sistema inmunológico del cuerpo.

Cualquiera que sea la parte más débil del cuerpo, ahí se mostrarán las señales de disfunción primero. Selye llama al esfuerzo total del cuerpo para lidiar con la tensión y su proceso de adaptación como "el síndrome general de adaptación". A medida que se debilite el sistema inmunológico, el cuerpo se hace más susceptible a infecciones y enfermedades hasta el cáncer. Por ejemplo, en el caso del cáncer, el cuerpo normalmente eliminaría una célula mutante; pero si el sistema está en disfunción, la célula puede tomar forma y desarrollarse en un tumor. El equilibrio hormonal también puede resentirse porque el cuerpo está tratando de sobrecompensar cuando reacciona a la tensión, volviéndose en contra de su propio tejido saludable.

Así que la tensión está relacionada, aunque sea indirectamente, a muchas, tal vez hasta casi todas las enfermedades. A través de los años, si constantemente se desencadenan reacciones a la tensión para situaciones inadecuadas, esto puede ocasionar daño al cuerpo. Tal vez no estemos conscientes de la tensión hasta que nos enfrentamos al dolor. Técnicas para la reducción de la tensión no solo prevendrán o aliviarán un dolor de cabeza (debido a la tensión), u otras quejas relacionadas con la tensión, sino que actuarán para prevenir enfermedades futuras.

APPENDIX Q
CREDIBILITY QUESTIONNAIRE

Credibility Questionnaire

Name _____

Please read the following questions and circle the number which best describes your present beliefs about the self control instructions you just received.

1. How logical does this treatment (recorded information and training materials) seem to you?

Not										Very
<u>Logical</u>										<u>Logical</u>
0	1	2	3	4	5	6	7	8	9	10

2. How confident are you that this treatment (recorded information and training materials) will help you control your emotional response during the epidural injection?

Not										Very
<u>Confident</u>										<u>Confident</u>
0	1	2	3	4	5	6	7	8	9	10

3. How confident would you be in recommending this treatment (recorded information and training materials) to a friend who was to undergo an epidural injection?

Not										Very
<u>Confident</u>										<u>Confident</u>
0	1	2	3	4	5	6	7	8	9	10

4. How willing are you to use this treatment (recorded information and training materials) in coping with the

Not										Very
<u>Willing</u>										<u>Willing</u>
0	1	2	3	4	5	6	7	8	9	10

APPENDIX R
CUESTIONARIO DE CREDIBILIDAD

Cuestionario de Credibilidad

Nombre _____

Favor de leer las siguientes preguntas y encircule el numero que mejor describe sus creencias actuales acerca de las instrucciones de autocontrol que acaba de recibir.

1. Que tan logico le parece este metado (informacion grabada)?

No es											Muy
<u>Logico</u>											<u>Logico</u>
0	1	2	3	4	5	6	7	8	9	10	

2. Que tan seguro se siente en que este metado (informacion grabada) le ayudara a controlar su reaccion emocional durante el tratamiento?

Nada											Muy
<u>Seguro</u>											<u>Seguro</u>
0	1	2	3	4	5	6	7	8	9	10	

3. Que tan seguro se sentiria al recomendar este metado (informacion grabada) a un amigo que tendria que someterse a este tratamiento?

Nada											Muy
<u>Seguro</u>											<u>Seguro</u>
0	1	2	3	4	5	6	7	8	9	10	

4. Que tan dispuesto esta usted en utilizar este metado (informacion grabada) para lidiar con el tratamiento?

Nada											Muy
<u>Dispuesto</u>											<u>Dispuesto</u>
0	1	2	3	4	5	6	7	8	9	10	

APPENDIX S
POSTINJECTION QUESTIONNAIRE

APPENDIX T
CUESTIONARIO FINAL

Questionario Final

Name _____

1. Nos gustaria que clasificara el grado de ansiedad o nerviosidad que sintio durante el procedimiento. Haga esto colocando una "X" en un escalon de una escalera de 10 escalones. El escalon numero 10 es para representar ansiedad extrema, mientras que el escalon numero 0 representa nada de ansiedad. Los otros escalones representen grados de ansiedad entre estos dos extremos. Que numero escoje usted para representar su ansiedad?

Extremadamente Ansioso	_____	10
	_____	9
	_____	8
	_____	7
	_____	6
	_____	5
	_____	4
	_____	3
	_____	2
	_____	1
Nada de Ansiedad	_____	0

2. En una escala del 0 al 10, en la cual 0 es nada de dolor y 10 es dolor agudisimo, que numero le daria el dolor mas severo que usted experimento durante el procedimiento? Encircule un numero.

Nada de Dolor										Dolor Extremo
0	1	2	3	4	5	6	7	8	9	10

3. Utilizando la misma escala, que numero le daria al dolor promedio que experimento?

Nada de Dolor										Dolor Extremo
0	1	2	3	4	5	6	7	8	9	10

- 4. Utilizando una escala similar, clasifique el grado al que las instrucciones que recibio antes del procedimiento le ayudaron a soportar y a experimentar menos incomodidad. Para esta escala, 0 representa nada de ayuda, y el 10 representa de mucha ayuda.

Nada											De Mucha
de Ayuda											Ayuda
0	1	2	3	4	5	6	7	8	9	10	

- 5. Que tan sensible diria usted que es al dolor en una escala en dolor el 0 es para muy insensible y el 10 para muy sensible?

Muy											Muy
Insensible											Sensible
0	1	2	3	4	5	6	7	8	9	10	

- 6. Estime cuanto tiempo piensa usted que tomo el procedimiento total. _____ minutos

- 7. Ha tenido este procedimiento antes? _____ Si su respuesta es si, cuantas veces lo tuvo? _____

- 8. Comentarios adicionales acerca de su tratamiento:

APPENDIX U
OBSERVER'S DATA SHEET

Observer's Data Sheet

Patient _____ Physician _____

Sex _____

Ethnicity _____

- | | |
|-----------------|------------------|
| 1. Heart Rate | |
| Exam Room I | Exam Room II |
| (Pre-injection) | (Post-injection) |
| a. _____ | b. _____ |
2. Gross body movements (tally) _____
3. Duration of procedure _____
4. Verbalizations (tally)
- | | |
|---|-------|
| a. Exclamations (ouch, ooh) | _____ |
| b. Stop instructions
(please stop, no more,
I want out) | _____ |
| c. Self distress (I can't
take it) | _____ |
| d. Other verbalizations | _____ |
| Total | _____ |
5. Anxiety Rating on 0-10
scale _____

APPENDIX V
PHYSICIAN QUESTIONNAIRE

Physician Questionnaire

Patient _____

1. Did the patient experience any difficulty in tolerating the injection? _____

2. Please rate how anxious you thought the patient was during the procedure. Do this by placing an "X" on one step of the stepladder. The top step, 10, is for extremely anxious while the bottom step, 0, is for not anxious at all. The other steps represent degrees of anxiety between these two extremes.

Extremely anxious		_____ 10
		_____ 9
		_____ 8
		_____ 7
		_____ 6
		_____ 5
		_____ 4
		_____ 3
		_____ 2
		_____ 1
Not anxious at all		_____ 0

APPENDIX W

TABLES

Table W-1
Two-way Multivariate Analysis of Variance for Treatment Credibility

Source of Variation	SS	DF	MS	F
Between-Subjects				
Within Cells	1377.91	76	18.13	
Constant	20336.25	1	20336.25	1121.66
Group	78.08	3	26.03	1.44
Within Subjects				
Within Cells	354.44	1.55		
Items	18.51	3	6.17	3.97
Group by Items	9.80	9	1.09	.70

Table W2
Two-way Multivariate Analysis of Covariance for Heart Rate Data

Source of Variation	SS	DF	MS	F
Between-Subjects				
Within Cells	6822.74	75	90.97	
Regression	11820.64	1	11820.64	129.94
Constant	3094.23	1	3094.23	34.01
Group	432.29	3	144.10	1.58
Within-Subjects				
Within Cells	6797.47	152	44.72	
Observations	262.41	2	131.20	2.93
Group by Observations	242.79	6	40.47	.90

Table W-3
Two Way Multivariate Analysis of Variance on Outcome Measures^a

Source of Variation	SS	DF	MS	F
Between-Subjects				
Within Cells	2911581.40	71	41008.19	
Constant	14903371.36	1	14903371	363.42
Group	299333.88	3	99777.96	2.43
Within-Subjects				
Within Cells	22775871.08	568	40098.36	
Items	110458105.8	8	13807263	344.33
Group by Items	2337114.12	24	97379.75	2.43

^aDuration of procedure, observer anxiety rating, physician anxiety rating, patient post-anxiety rating, pain severity.

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