EFFECTS OF PREPARATORY INFORMATION AND SYSTEMATIC DESENSITIZATION ON REACTIONS BEFORE AND AFTER SURGERY

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A THESIS

in

The Department

of

Psychology

Presented in Partial Fulfillment of the Requirements for
the Degree of Master of Arts at
Concordia University
Montreal, Canada

April, 1975

Abstract

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The stress-reducing effects of preparatory information and standardized systematic desensitization were assessed and compared pre- and postoperatively for 64 male and female patients undergoing elective intra-abdominal surgery. Subjects were assigned to one of four groups on a quasi-random basis according to type of operation, doctor, sex, level of pain severity, and fear of anatomical destruction and pain and were presented with audio-taped surgery-related information or desensitization on the five consecutive days before admission to hospital. Control subjects received a placebo treatment or no treatment. Emotional reactions to surgery were measured on three occasions before surgery (before and following experimental treatment and prior to surgery) and two days after surgery. Both preparatory information and desensitization were equally effective in significantly decreasing surgery-related fears and state anxiety following experimental treatment. These effects were maintained after admission to hospital just before surgery. Following the operation, surgery-related fears and state anxiety were significantly lower for both experimental and control subjects than they were on three occasions before surgery. Trait anxiety, except for a single significant decrease just before surgery for the desensitization group,

remained stable regardless of treatment or the situational stress of surgery. Furthermore, neither preparatory information nor desensitization influenced the speed of postoperative recovery or the rate of consumption of analgesic medications.

Acknowledgements

The author wishes to express her sincere appreciation to Dr. William Brender for his invaluable support and advice throughout this project. The author is also grateful to Dr. Tannis Maag for her helpful guidance, Tom Bowman for his valuable comments, and Drs. John Sigal, Israel Shragovitch, Richard Margolese and Harvey Sigman for cooperation in providing a subject pool, without which this study would have been impossible. Sincere appreciation is also expressed to Mrs. Epstein, Marlene Tweed, Wendy Desbiens and Louise Verdone all of whom generously cooperated and assisted in the preparing of the final version of this study.

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Although the scientific study of pain is ageless, it still remains somewhat of a puzzle for physiology and psychology. Originally it was thought that the "adequate stimulus for pain sensation was the damaging of tissue" (Hardy, Wolff & Goodell, 1952). Pain does not seem to be a sensory modality like vision and audition. In fact, one of its most striking features is the lack of relationship between the conditions of stimulation and the amount of experienced pain. Pain perception is not a simple function of stimulus intensity or amount of tissue damage. It is markedly influenced by a variety of psychological factors. The role of cognitions, set, attention, and social context in pain perception has been demonstrated in numerous experiments. Some variables which have been studied include expectation of pain (Hill, Kornetsky, Flanary, & Wikler, 1952; Johnson, 1973), suggestion (Hardy, et al., 1952), significance of the wound (Beecher, 1959), competing sensory stimuli and distraction (Gardner, Licklider, & Weisz, 1960), instructions (Blitz & Dinnerstein, 1958, 1971; Johnson & Leventhal, 1974; Staub & Kellett, 1972), and social cues (Craig & Weiss, 1971). Pain perception is also influenced by emotional factors. For example, a number of studies have found a relationship between anxiety level and perception of pain. Malmo and Shagass (1949) studied pain perception in psychiatric patients using thermal stimuli. They found that the greater the anxiety of the patients, the greater was the reaction in terms of muscle tension to the painful stimuli. Hill and his associates

(1952), using electric shocks to produce pain in persons treated for drug addiction found that experimental conditions which enhanced anxiety or fear of pain led to an overestimation of the intensity of the painful stimuli. These investigators were able to show that morphine diminished pain if the level of anxiety was high but had no demonstrable effect if the subjects' anxiety had been dispelled.

Janis (1958) reported results from preoperative and post-operative interviews with 22 surgical patients and from a retrospective survey with 149 students who had undergone surgery. In both samples, the patients who were extremely anxious prior to surgery as well as those who showed the least preoperative anticipatory fear, presumably by virtue of denial defenses, were the most disturbed following surgery. After surgery they showed very intense anger and disappointment and they resisted treatment designed to facilitate their postoperative recovery. The patients who showed moderate amounts of anticipatory fear before surgery, in contrast, made the most successful adjustment following surgery. The results supported his emotional drive theory which predicts a curvilinear relationship between preoperative fear level and postoperative adjustment, with patients who are moderate in preoperative fear showing the best postoperative adjustment and patients either high or low in preoperative fear showing the worst adjustment. Janis suggested that the moderately anxious patients were able to do the work of worrying prior to surgery which prepared them for the discomforts and pain they were to experience during the postoperative period. He theorized that preparatory information should increase preoperative fear for patients who would ordinarily show low anticipatory fear and decrease fear in patients who were extremely anxious

prior to surgery with the result that the preparatory information would stimulate the work of worrying in these patients and consequently cause a reduction in postoperative emotional response.

The evidence that cognitive and emotional factors play a major role in pain perception has led a number of investigators to study the effects of preoperative information on pain experiences following surgery and on a related variable, speed of recovery. One group of investigators (Egbert, Battit, Welch, & Bartlett, 1964) prepared patients for the stress of intra-abdominal surgery by means of a process of rapport-building with their anesthetist, who told patients what to expect postoperatively and taught them how to relieve their discomfort. The results showed that individually instructed patients required less analgesic medication following surgery and were discharged from the hospital earlier than the unprepared patients. In another study (Andrew, 1970), brief standardized preparatory information was presented to patients by audio-tape. The patients, awaiting major and minor surgery as well as nonsurgical treatment, were divided into three cognitive coping styles using Goldstein's (1959) sentence completion test. Subjects designated sensitizers employed a coping style which involved confronting threatening information while avoiders were those who tended to avoid threat. Neutrals, or nonspecific defenders, displayed no stable pattern for coping with threat. Andrew found that the three groups did not profit equally from the preparatory communication. Only prepared neutrals required fewer analgesic medications and had a shorter stay in hospital than their uninstructed controls. Both prepared sensitizers and avoiders did not differ from their unprepared controls with regard to number of days hospitalized postoperatively and,

in fact, prepared avoiders, whose anxiety level seemed to have been raised by the presentation of medical information, required significantly more medication than unprepared avoiders following surgery.

DeLong (1970) also studied the effects of provision of medical information on patient comfort and rate of recovery after surgery. She was interested in the effects of specific as compared to general surgery information. Like Andrew (1970), DeLong divided her subjects into three groups (copers, avoiders and neutrals) according to their cognitive coping style and presented brief standardized information to them by means of audio-tape. DeLong found that subjects in all three groups (copers, avoiders and neutrals), if presented with specific as opposed to general information about their operation, required fewer analgesic drugs following surgery, were discharged from the hospital earlier and complained less. When coping styles were considered, DeLong, found a complex interaction between them and type of information. Neutrals who received either general or specific preparatory information required fewer postoperative analgesic medications, were discharged from hospital earlier and complained less than their controls. Copers, on the other hand, had shorter hospital stays and complained less than their controls only if they received specific as opposed to general information. Avoiders benefitted neither from general nor from specific preparatory information and, in fact, complained significantly more following specific information.

The foregoing studies suggest that the provision of relevant preparatory information speeds recovery from surgery and alters the rate of consumption of analgesic agents. There is also some evidence to suggest that this intervention may interact with cognitive style of

coping.

A technique which has been highly effective in decreasing a wide range of intense fear reactions is systematic desensitization (Bandura, 1969; Paul, 1969 a, b). It has been used successfully to treat fear of snakes, rats and other small animals (Lang & Lazovik, 1963; Melamed & Lang, 1967; McGlynn, Wilson, & Linder, 1970; Robinson & Suinn, 1969), acrophobia and claustrophobia (Baker, Cohen, & Saunders, 1973; Lazarus, 1961; Scrignar, Swanson, & Bloom, 1973), test anxiety (Emery & Krumboltz, 1967; Katahn, Strenger, & Cherry, 1966) and a variety of neurotic problems in which fear is a major component (Bandura, 1969; Paul, 1969b). It seems unlikely that preoperative fear and anxiety differ in any qualitative way from the range of emotional conditions to which systematic desensitization has been applied. Consequently, it is proposed that desensitization might lend itself to the reduction of emotional responses (anticipatory fear and anxiety) in patients about to undergo surgery in addition to reducing the rate of consumption of analgesic medications and decreasing the postoperative convalescence period.

The basic procedures involved in desensitization have been described by Wolpe (1958) and Wolpe and Lazarus (1966). Essentially the standard form involves three stages. First the patient or subject is trained in deep muscle relaxation using an abbreviated version of Jacobson's (1938) progressive relaxation training. With this technique the subject is taught to relax, successively, each of the gross muscle groups throughout the body on instruction from the therapist. Next the patient and therapist together construct a fear or anxiety hierarchy consisting of a graded list of objects or events related to the

patient's fear, beginning with the least intense stimulus and extending to the most frightening situation. Finally the therapist begins actual desensitization while the patient is deeply relaxed by verbally presenting hierarchy items for the patient to imagine, beginning with the low anxiety items. Generally each situation is presented repeatedly until the patient can contemplate it without anxiety. The patient has control over both the frequency and length of time each item is presented by using some type of nonverbal distress signal, usually a lifting of the forefinger, which has been arranged in advance by the therapist and patient. Treatments are usually given several times a week until the items on the hierarchy are no longer anxiety-provoking.

Attempts to account for the effectiveness of systematic desensitization have included cognitive explanations (Marcia, Rubin, & Efran, 1969; Valins, 1966; Valins & Ray, 1967; Wilkins, 1971), social reinforcement factors (Leitenberg, Agras, Barlow, & Oliveau, 1969) and the process of counterconditioning (Bandura, 1969; Davison, 1968). Recent reviews of this literature (Davison & Wilson, 1973; Wilson & Davison, 1971) have concluded that experimental support at the present time is strongest for a counterconditioning explanation. According to the principle of counterconditioning, modification of fear and avoidance is accomplished by inducing activities incompatible with emotional responses in the presence of anxiety-arousing stimuli and thereby neutralizing the arousal potential of threatening stimuli.

A number of convenient alterations in the basic procedure of systematic desensitization have been tested. For example, Lazarus (1961) introduced group desensitization in order to treat simultaneously several individuals with similar debilitating fears. He employed single

standardized desensitization hierarchies to treat groups of patients suffering from acrophobia, claustrophobia, sexual impotence and mixed phobias. More recently several studies have investigated the relative effectiveness of standardized as compared to individualized hierarchies. Emery and Krumboltz (1967) reported an experiment in which one group of test-anxious college freshmen received desensitization with a standard 16-item hierarchy while a second group was allowed to individually order the same 16 items before the desensitization treatment began. The outcome of desensitization, as measured by self-report indices of fear, was equivalent for the two conditions. In another study (Paul & Shannon, 1966) group desensitization using a standardized hierarchy was also found to be as effective as individualized desensitization for treating interpersonal performance anxiety in college freshmen. McGlynn, Wilson, and Linder (1970) reported data from an experiment in which one group of snake-phobic female college students constructed their own hierarchies for desensitization while each subject in the second group was individually "yoked" to one subject in the first group and received desensitization along a hierarchy developed solely by the other subject of her pair. As in the foregoing studies, the outcomes associated with the two conditions did not differ significantly.

Another procedural issue which has recently been investigated has been the question of self-directed or automated desensitization. Typically, studies of desensitization with minimal therapist contact have employed an automated presentation of desensitization in the form of either a tape or record usually in the therapist's office, though some have experimented with subjects carrying out therapy at home (Reppucci & Baker, 1969). A few studies have employed a taped hierarchy

specifically made up for the subject and using the subject's own voice (Migler & Wolpe, 1967), whereas others have used a standardized hierarchy (Emery & Krumboltz, 1967; Miller & Nawas, 1970; Nawas, Fishman, & Pucel, 1970) or even a general framework with pauses where the subject inserts his own items (Kahn & Baker, 1968). In the few studies comparing variants of self-directed desensitization with standard therapist-directed desensitization, both techniques have been equally effective (Baker, Cohen, & Saunders, 1973; Clark, 1973; Donner, 1970; Donner & Guerney, 1969, Kahn & Baker, 1968; Melamed & Lang, 1967; Phillips, Johnson & Geyer, 1972). In addition, Robinson and Suinn (1969) have demonstrated successful desensitization of a spider phobia within a five-day period. As the foregoing studies indicate, Wolpe's original desensitization procedure has been effectively modified so that individuals or groups manifesting fear and avoidance behavior can be treated, sometimes in a relatively short period of time even without the presence of a therapist.

Pain research has generally been conducted using either experimental procedures for pain induction or by studying pain arising from pathological conditions. The present experiment employed surgery patients as subjects and thus belongs to the second group. It is recognized that the use of pathological pain has certain limitations. It obviously does not permit the same degree of control as experimentally-induced pain. On the other hand, research findings based on experimental pain have failed to generalize to real-life situations. For example, Beecher (1966) found that large doses of morphine, which were given to subjects undergoing painful radiant heat stimulation, were not capable of significantly altering the pain produced. In contrast, much

smaller doses of morphine consistently reduced, and often stopped completely, the severe pain of an operative incision or wound. He concluded that the reason why powerful analgesics were unable to produce a dependable elevation of pain threshold in experimental subjects although they are universally found to be effective in treating pain of pathological origin was because laboratory pain was not comparable to clinical pain, especially in view of the major role of cognitive and affective factors in pain perception. Experimentally-induced pain, for obvious reasons, does not have the same significance for a subject that postoperative wound pain has for a patient. The fact that differences between experimental and pathological pain have been observed (Beecher, 1959, 1966) underlines the necessity and importance of appraising methods for influencing pain perception where the pain responses naturally occur.

The present experiment was designed to evaluate and compare the effects of preparatory information and systematic desensitization on measures of emotion (self reports of pain severity, surgery-related fears, state anxiety, and a predispositional measure of trait anxiety) taken before and after surgery, speed of postoperative recovery, and rate of consumption of analgesic medication in surgery patients. Two standardized operations, elective hernia and cholescystectomy (gall bladder) surgery were chosen because of the comparability of their incidence and general postoperative course. In addition, both operations constitute a fairly uniform stress with no life threat. The purpose of the study was five-fold:

1) to develop an automated, preprogrammed and standardized body of preparatory information for surgical patients undergoing hernia or gall

bladder surgery;

2) to develop an automated, preprogrammed and standardized systematic desensitization treatment for surgical patients undergoing hernia and gall bladder surgery;

3) to evaluate the effectiveness of preparatory information in attenuating preoperative and postoperative emotional reactions to surgery and to attempt to replicate the findings that preparatory information speeds recovery from surgery and decreases postoperative consumption of analgesic medications;

4) to evaluate whether systematic desensitization is an effective technique for decreasing preoperative and postoperative emotional responses to surgery, for increasing speed of recovery from surgery, and for reducing postoperative consumption of analgesic medications;

5) to compare the relative effectiveness of preparatory information as opposed to systematic desensitization.

Method

Subjects

A total of 64 subjects (32 males, 32 females) ranging in age from 25 to 78 years with a median age of 48, participated in this experiment. All the subjects were patients scheduled for either of two elective surgical operations (32 hernia, 32 gall bladder) at the Jewish General Hospital. Half of the subjects (16 hernia patients and 16 gall bladder patients) were patients of one surgeon while the remaining 32 subjects were patients of a second surgeon. Patients who seemed to lack proficiency in English were excluded from the sample. Thirteen patients declined to participate in the experiment or were unavailable during the period immediately preceding their admission to hospital.

Overview of Experimental Design

The basic plan of the study is presented in Table 1. A general description of the procedure and testing schedule is provided in the next few pages followed by a detailed description of the tests. By prior arrangement with the two surgeons, the experimenter was informed of the admission date and the day of surgery for each appropriate patient. The patient was then contacted individually by the experimenter who very briefly oriented him about the nature and purpose of the study and invited him to participate. Patients who accepted were scheduled for their first appointment with the experimenter five days prior to admission to hospital.

In the first visit, the information which had been provided over the phone was amplified by additional written explanation

Table 1

General Experimental Design and Procedure

PREHOSPITALIZATION			HOSPITAL ADMISSION	POSTHOSPITALIZATION		
PRESURGERY					SURGERY	POSTSURGERY
Pretreatment Battery	Experimental Conditions	Posttreatment Battery		Presurgery Battery		Postsurgery Battery
General Information Questionnaire						
Pain Severity Self-Report	Information	Pain Severity Self-Report				
Fear Thermometer	Desensitization	Fear Thermometer		Fear Thermometer		
Fear of Anatomical Destruction	Placebo	Fear of Anatomical Destruction		Fear of Anatomical Destruction		Fear of Anatomical Destruction
State-Trait Anxiety Inventory	Control	State-Trait Anxiety Inventory		State-Trait Anxiety Inventory		State-Trait Anxiety Inventory
						Medications
						Days

(Appendix A) informing the patient that the purpose of the study was to find ways of making the operation less unpleasant for him. The letter also stated that participation in the study was supported by the patient's surgeon. It guaranteed the participants that their responses would be kept confidential.

Following this orientation, the pretreatment battery was administered to the patient. This battery of tests included a general information questionnaire and self report measures of current pain severity, fears of surgery, anatomical destruction and pain, and state and trait anxiety. Immediately after the subject completed the pretreatment battery, the investigator scored the tests and assigned the subject to one of the two experimental treatment groups, to the placebo group or to the test-retest control group on a quasi-random basis so that the groups were balanced with respect to sex, doctor and type of surgery as well as level of pain severity and fear of anatomical destruction and pain. Subjects assigned to the test-retest control group were then given an appointment to complete the posttreatment battery on the day before their admission to hospital.

Following assignment to one of the two treatment conditions or to the placebo group, the first of five audio-taped treatment sessions was presented. The tape began with a detailed explanation of the rationale and course of the particular treatment to which the subject had been assigned. Immediately following this, the tape presented the first session of the treatment. At the end of the first session, subjects in the three treatment groups were given appointments for the remaining four treatment sessions. Any appointments which were missed were rescheduled during the same five day period. The four

subsequent sessions for each of the three treatment groups were also taped and followed the basic format of the first session; the tapes began with a brief summary of what had been presented the day before and continued with the particular treatment to which the subject had been assigned. All five treatment sessions were carried out in the homes of the subjects and covered the five consecutive days immediately preceding admission to hospital. Immediately following the final treatment session, each subject completed the posttreatment battery of tests. At the same time subjects were asked to refrain from discussing the experimental treatment with their doctor and the hospital staff upon their admission. The staff was thus unaware of the treatment group to which patients belonged.

The third assessment battery, the presurgery battery, was administered to the subjects in the hospital by nurses on the evening before surgery. The fourth and final assessment consisted of several measures of recovery from surgery. These were patient self report measures which were administered to each subject by a nurse on the second day after the operation and two objective measures (amount of analgesic medications taken by the subject after his operation and duration in days of his stay in hospital). This information was provided by the nurses following the subject's discharge.

Description of Measures

The dependent variables in this experiment included measures of emotional reactions to surgery (self reports of pain severity, fear of surgery, fear of anatomical destruction and pain, and state and trait anxiety), as well as speed of recovery from surgery and amount of

analgesic medication taken following surgery. The measures of emotional response were obtained from patient self report scales completed by the subjects before and after surgery. The two objective measures were collected on the day of discharge for each subject.

Pretreatment Battery

The battery of tests administered to the subjects immediately preceding the experimental treatment (five days prior to admission to hospital) included: a general information questionnaire, a self report of pain severity, the Fear Thermometer (Walk, 1956), a fear of anatomical destruction and pain scale (Rubin, Lawlis, Tasto & Namenek, 1969) and the State-Trait Anxiety Inventory, Form X (Spielberger, Gorsuch, & Lushene, 1970).

General Information Questionnaire (Appendix B). This instrument was designed to provide demographic information about the patient. Subjects were required to indicate their ethnic background, the name of their surgeon, and the type of operation they were about to undergo.

Self-Report of Pain Severity (Appendix C). This was simply a 7-point rating scale. It required subjects to rate the severity of pain arising from their illness which they had experienced over the previous week from 1 (no pain) to 7 (unbearable).

The Fear Thermometer (Appendix D). Walk (1956) developed a thermometer-shaped scale to measure situational anxiety. He reported significant correlations between this scale and external behaviour (performance in a parachute jumping course), as well as other verbal reports and attitudes elicited in questionnaires (1956). Using Walk's device with 10 divisions, subjects in this experiment rated the degree

of their fear of the operation. The end points of the scale were defined so that 1 represented a very relaxed attitude about the operation and 10 indicated extreme fear.

Fear of Anatomical Destruction and Pain Scale (Appendix E). This is a 13-item inventory of discrete stimuli and situations which are rated by subjects in terms of the amount of fear or discomfort elicited by each item. Ratings are made on a 5-point scale ranging from 1 (no fear) to 5 (very much fear). Rubin's (Rubin, Lawlis, Tasto, & Namenek, 1969) factor analysis of Lang and Lazovik's (1963) 122-item Fear Survey Schedule yielded nine of the items which were employed in this study. Rubin and his associates found that these nine items reflected "fear of anatomical destruction and pain." Four more items which were drawn from the original Fear Survey Schedule (Lang & Lazovik, 1963) were added by the experimenter to increase the number of items in this category. Scores on the scale range from 13 to 65.

The State-Trait Anxiety Inventory, Form X (Appendix F). Spielberger and his associates (Spielberger, Gorsuch, & Lushene, 1970) constructed two separate 20-item self-report scales which measure the level of current anxiety (STAI A-State) and chronic anxiety (STAI A-Trait). The STAI A-State scale requires subjects to describe how they feel at a particular moment in time. The STAI A-Trait scale asks subjects to describe how they generally feel. Several investigators (Johnson & Spielberger, 1968; Spielberger, Gorsuch, & Lushene, 1970; Stoudenmire, 1972) have demonstrated that scores on the A-State scale increase in response to situational stress and decline under relaxed conditions while scores on the A-Trait scale measure individual differences in anxiety-proneness and are not affected by situational stress.

Of particular interest is the recent finding that scores on the A-State scale are much higher prior to surgery than following it while A-Trait scores are essentially the same before and after surgery (Spielberger, Auerbach, Wadsworth, Dunn, & Taulbee, 1969). Spielberger and his associates (1970) report reasonably high stability coefficients ranging from .73 to .86 for A-Trait and relatively low stability coefficients (median r = .32) for A-State. Scores on both subtests of the STAI range from 20 to 80.

Posttreatment Battery

The battery of tests administered to subjects on completion of the experimental treatment and prior to admission to hospital was identical to the pretreatment battery except for the general information questionnaire which was not readministered.

Presurgery Battery

The battery of tests administered to the subjects on the evening before surgery was almost identical to the first two test batteries*. The presurgery battery included the Fear Thermometer, the fear of anatomical destruction and pain scale, and the State-Trait Anxiety Inventory.

Postsurgery Battery

The tests administered to the subjects two days after surgery were identical to the presurgery battery except for the Fear

* The pain severity self report was not readministered in the presurgery battery as a result of an erroneous omission.

Thermometer which was no longer relevant.

Objective Measures

Two additional measures were the amount of analgesic medications taken by subjects following surgery and the number of days that subjects remained in hospital.

Experimental Groups

Test-Retest Controls

This group consisted of 16 subjects who met selection criteria but who were not administered an experimental treatment prior to surgery. Subjects in this group simply completed the assessment batteries in the same temporal sequence as subjects in the treatment groups.

Treatment Groups

Each subject assigned to one of the three treatment groups was seen individually by the investigator. Treatments were limited to five sessions over the five consecutive days immediately preceding admission to hospital. Each of the three experimental treatments was entirely preprogrammed and presented by audio-tape.

Information Group. This condition consisted of providing subjects with general information about the etiology of their condition, reasons for surgery, common treatments and procedures during the preoperative and postoperative periods, and suggestions as to how they

could improve their postoperative recovery (Appendix G). The suggestions were identical to those which Andrew (1970) provided her subjects. The information tape described the general sequence of events which the patient would experience from admission to discharge. Each subject was seen five times for approximately thirty minutes each visit. The first session began with a detailed explanation of the rationale and course of the experimental treatment. The tape then presented a general definition of the subject's particular condition and its possible etiology. At the conclusion of the session the information was summarized for the subject.

The following three sessions each began with a five-minute summary of material presented previously. The rest of each session was devoted to providing the subject with new information. In the fifth and final visit the subject was presented with a summary of all the information provided him from the beginning.

Systematic Desensitization Group. This treatment consisted of instruction in deep muscle relaxation (Paul, 1966) and a 20-item desensitization hierarchy of anxiety-provoking thoughts related to surgery (Appendix H). A single standardized hierarchy was employed for all subjects in this condition. The hierarchy contained items obtained from interviews with a sample of 25 patients awaiting hernia and gall bladder surgery as well as persons who had recently undergone these operations. Patients were asked to report thoughts and procedures related to surgery which they considered to be anxiety-provoking. Each patient was also required to rank order his items from least to most anxiety-provoking. The experimenter then arranged the most frequently reported fears into a composite hierarchy based on the magnitude of fear associated with each item. This became the hierarchy used with

subjects in this group. Evidence has been cited in the introduction to show that group desensitization using the standardized hierarchy is as effective as individualized desensitization for treating a variety of problems (Emergy & Krumboltz, 1967; McGlynn, Wilson & Linder, 1970; Paul & Shannon, 1966).

In the initial treatment session, the first three minutes of the desensitization tape explained the rationale and course of treatment. Subjects were told that their emotional reactions to surgery were the result of learning and that these inappropriate emotional reactions could be unlearned as they visualized the anxiety-provoking scenes presented on the tape while they were deeply relaxed. In the remaining 17 minutes of the first session, subjects received training in progressive relaxation. This procedure, described by Paul (1966), has as its objective the induction of a state of relaxation in subjects. The technique involves alternately tensing and relaxing gross muscle groups and learning to focus attention on the distinction between tension and relaxation in these muscles. The subjects were instructed to practice the relaxation procedure between sessions, twice a day for no longer than 15 minutes.

The second through fifth sessions were conducted in the following manner. The tape began with three minutes of relaxation induction and correction of any problems in achieving this state. Then items from the anxiety hierarchy were presented for visualization, beginning with the last item of the previous session and working up to more disturbing items. In a single session five to seven different items were presented for visualization. Each item was presented once to three times for a period of three to fifteen seconds. During the

last few minutes of each session deep relaxation was reinstated so that subjects would have no feelings of anxiety at the termination of a session.

Placebo Group. This treatment was employed to determine whether any improvement would result from nonspecific effects such as expectation of relief, a therapeutic relationship, and suggestion. In the first treatment session subjects listened to a taped three-minute explanation of the rationale and course of treatment (Appendix I). The rationale consisted of a brief statement that the subject's emotional reactions to surgery were similar to those engendered by any other stressful situation. The subjects were also told that this anxiety was largely the result of previous direct or vicarious experience with medical personnel and ideas about illness. The subjects were further informed that their feelings of anxiety could be diminished if they tried to relax by listening to music. Soothing music, they were told has a calming effect and has been found to be so effective in decreasing anxiety that many dentists have substituted music for local anaesthesia. The last 27 minutes of the first session were spent with the subject listening to taped music with eyes closed and reclining in a comfortable chair. The same procedure was followed for the second through fifth sessions. Each session was approximately 30 minutes in length.

Results

The data of this experiment consist of changes in seven dependent variables: five self report measures (1) a pain severity scale; 2) a self-report of fear of surgery; 3) a fear of anatomical destruction and pain scale; 4) a state anxiety self-report; and 5) a trait anxiety scale) as well as two objective measures of recovery from surgery (number of recuperative days in hospital and amount of analgesic medication taken following surgery). Each dependent variable measure was submitted to separate statistical analysis to evaluate changes within treatments and the differences between treatments.

The five self-report measures in this experiment yielded data which were ordinal in nature. Stevens (1968) and others (Senders, 1958; Siegel, 1956) have argued that parametric statistics, specifically t and F tests, should be avoided when the measurement scales are no stronger than ordinal. Others, however, regard the use of parametric statistics to analyze ordinal data as appropriate (Baker, Hardyck & Petrinovitch, 1966; Boneau, 1961) provided certain precautions are taken, these being that the tests of significance are two-tailed, the samples for comparison have equal N's, the sample size is large, and the underlying distribution does not deviate too extremely from normality. Another reason for using parametric statistics is the added advantage of being able to assess interaction effects. Analysis of variance, therefore, was selected as the method to evaluate overall differences and Tukey's (1953) multiple-range test with Cicchetti's

(1972) adjustment* was used to make paired comparisons of the means derived from interaction tables in the factorial analysis of variance.

Two of the self report measures in the present experiment, however, (the pain severity scale and the fear of surgery self-report) consisted of a relatively small number of categories (pain severity scale = 7; fear of surgery scale = 10) as compared to the other self report measures (fear of anatomical destruction and pain scale = 52; state and trait anxiety scales = 60). Therefore, despite the opinion by some (Baker, et al., 1966; Boneau, 1961) that parametric statistics can be used with ordinal data, it was considered more conservative to use nonparametric statistics to analyze pain severity and fear of surgery scores. The Kruskal-Wallis H test was selected as the method for evaluating overall between group differences while the Mann-Whitney U test was used to make paired comparisons between conditions. The Wilcoxon matched-pairs signed-ranks test was used to evaluate changes within each treatment condition.

Since the procedure of assigning subjects to groups in this experiment was quasi-random, the design could not be considered fully matched. Therefore, tests of significance for independent samples were used to analyze between group differences.

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* In order to solve the problem of confounded comparisons, Cicchetti proposed a new method of applying Tukey's multiple range test to interaction tables in a factorial analysis of variance. The solution he proposed (in order to determine the smallest mean difference required for statistical significance) adjusts the number of treatments by basing the q statistic on the number of unconfounded comparisons only.

Self-Report of Pain Severity

A self report measure of pain severity was obtained on two occasions: 1) five days before admission to hospital and immediately prior to the experimental treatment (pretreatment) and 2) the day before admission to hospital and immediately following experimental treatment (posttreatment). Figure 1 shows the median pain severity scores for each group before and following experimental treatment. The differences in pain severity scores between conditions at pretreatment were tested by the Kruskal-Wallis H test and proved to be nonsignificant [H (3) = 2.53, $p > .30$] .* An analysis of pain severity scores following experimental treatment, however, yielded significant differences between groups [H (3) = 12.66, $p < .01$]. Several comparisons between conditions at posttreatment were subsequently performed using the Mann-Whitney U test. No significant difference was obtained between the two experimental groups. Likewise, the two control groups did not differ significantly from each other. The information group differed significantly from each of the control groups($p < .02$) while the desensitization group differed from the control group ($p < .05$) but not from the placebo group, although the difference was approaching significance. These comparisons and results are summarized in Table 2.

In order to evaluate the changes in pain severity scores for each condition from pretreatment to posttreatment, Wilcoxon matched-pairs signed-ranks tests were performed. Figure 1 shows that median

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* Subjects were assigned to groups on the basis of their level of pain severity and therefore the groups were equated at pretreatment on the basis of this variable.

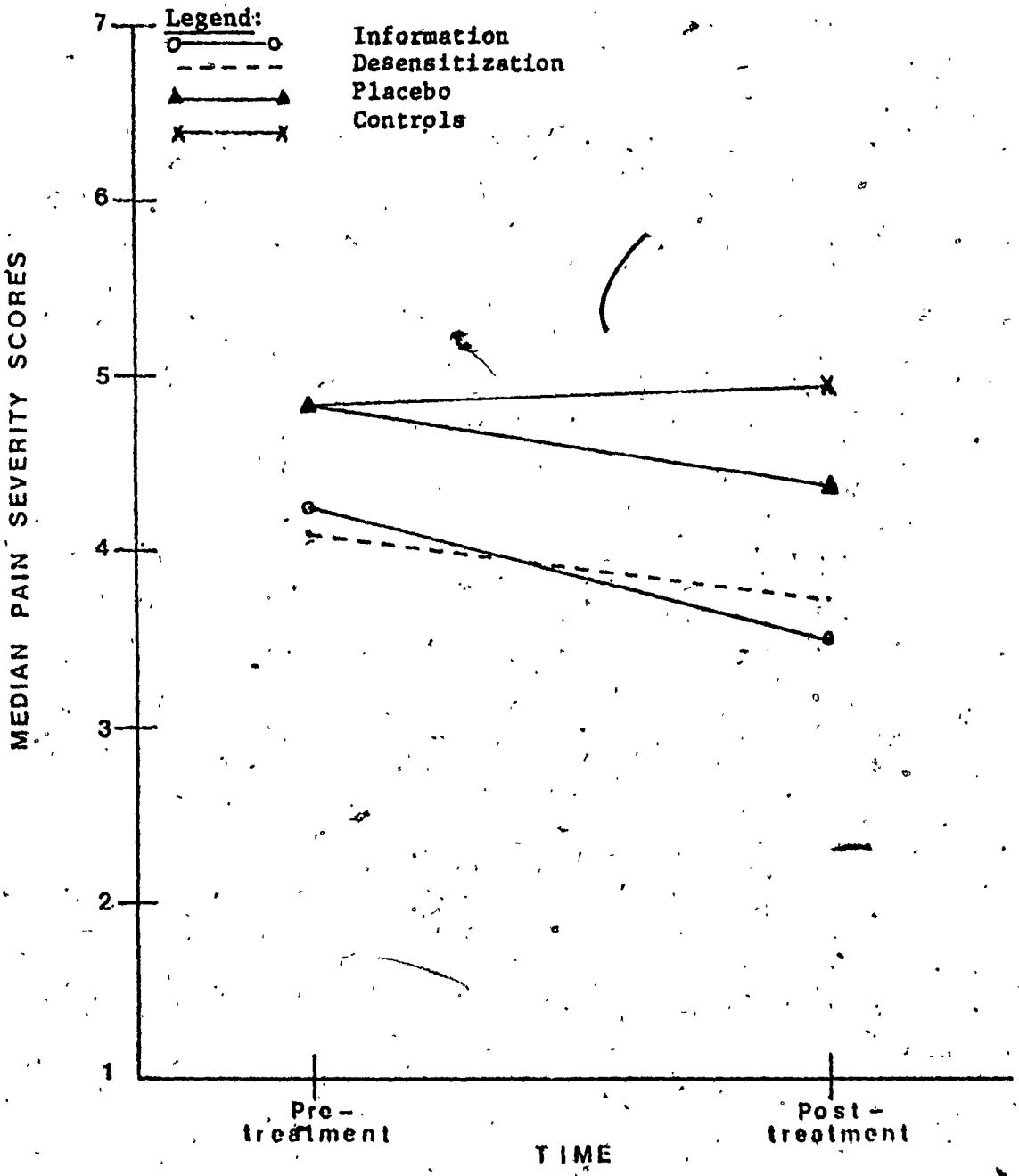

Fig. 1 Median Pain Severity Scores by Experimental Groups at Pretreatment and Posttreatment.

Table 2

Comparison of Pain Severity Scores at Posttreatment

Comparisons[a]	U-Value[b]
Information vs Desensitization	115.5
Information vs Placebo	63.5**
Information vs Control	49.0**
Desensitization vs Placebo	81.0
Desensitization vs Control	71.5*
Placebo vs Control	117.5

Note. U values given in Downie & Heath, 1965, Table 10, pp. 310-311.

[a] $n = 16$ in all paired comparisons.

[b] two-tailed tests.

* $p < .05$.

** $p < .02$.

pain severity scores for the two experimental conditions and the placebo group were slightly lower following experimental treatment than they were prior to treatment whereas median pain severity scores for the test-retest control group were somewhat elevated at posttreatment as compared to pretreatment. None of these changes, however, were significant. A summary of these results appears in Appendix J.

Self-Reported Fear of Surgery

A self-report measure of fear of surgery was obtained by means of the Fear Thermometer on three occasions: 1) five days before admission to hospital and immediately prior to the experimental treatment (pretreatment), 2) the day before admission to hospital and immediately following experimental treatment (posttreatment), and 3) the evening before the operation (presurgery). Figure 2 shows the median fear scores for each group at pretreatment, posttreatment and presurgery. The Kruskal-Wallis H test was used to test the difference between groups at the three testing points. No significant differences between conditions were found at pretreatment [H (3) = 3.05, $p > .20$] The differences between groups at posttreatment [H (3) = 11.72, $p < .01$] and presurgery [H (3) = 21.79, $p < .01$]

Paired comparisons between conditions at posttreatment and presurgery using the Mann-Whitney U test were subsequently performed. The experimental groups did not differ significantly from each other either at posttreatment or presurgery. The two control groups, as well, were not significantly different from each other at post-

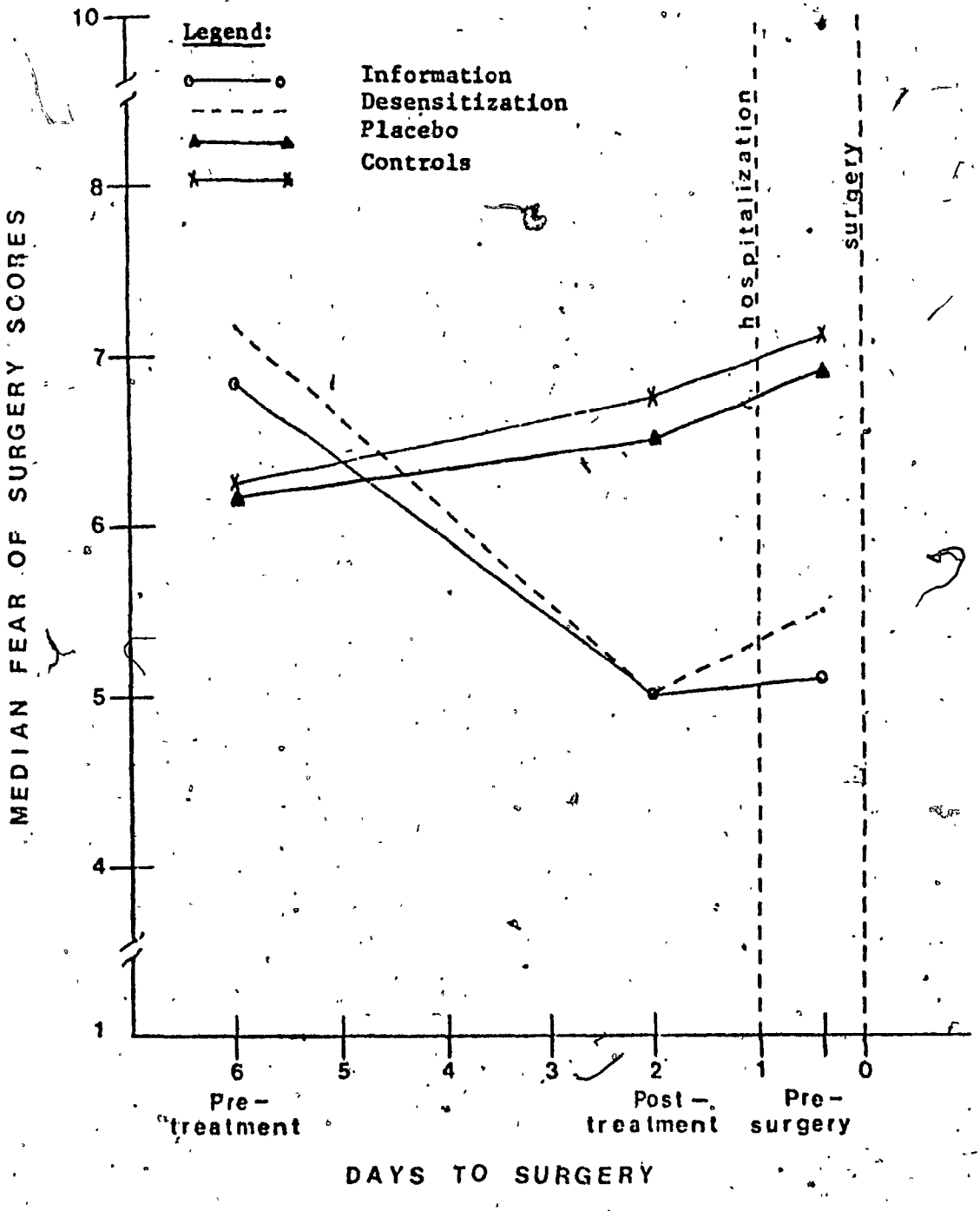

Fig. 2 Median Fear of Surgery Scores by Experimental Groups at Pretreatment, Posttreatment, and Presurgery.

treatment or presurgery. The desensitization treatment generated fear scores at posttreatment which were significantly different from those of the two control groups (Desensitization vs Placebo: $p < .05$; Desensitization vs Control: $p < .02$). Furthermore, this difference was maintained at presurgery (Desensitization vs Placebo: $p < .002$; Desensitization vs Control: $p < .002$). The information group differed significantly from the control group at both posttreatment ($p < .05$) and presurgery ($p < .002$). Information also differed significantly from the placebo treatment at presurgery ($p < .02$), although the difference between the information and placebo treatments at posttreatment fell just short of significance. These comparisons and results are summarized in Table 3.

Figure 2 shows that median fear scores following experimental treatment decreased for the two experimental groups and increased slightly for both control groups. This trend seemed to continue from posttreatment to presurgery. In order to evaluate these changes for each condition from pretreatment to presurgery, Wilcoxon matched-pairs signed-ranks tests were performed. Neither of the control groups changed significantly in reported fear of surgery from pretreatment through presurgery. In contrast, both experimental groups reported significantly lower fear scores at posttreatment as compared to pretreatment (Information: $p < .01$; Desensitization: $p < .01$) and, furthermore, there was no significant difference in self-reported fear of surgery from posttreatment to presurgery for either the information or desensitization group. These results are summarized in Table 4.

Table 3

Comparison of Self-Reported Fear of Surgery Scores at Post-treatment and Presurgery

Comparisons[a]	U-Value[b]	
	Posttreatment	Presurgery
Information vs Desensitization	120.0	109.0
Information vs Placebo	75.5	60.0**
Information vs Control	66.5*	47.0***
Desensitization vs Placebo	69.0*	43.0***
Desensitization vs Control	60.5**	29.5***
Placebo vs Control	118.5	115.5

Note. U values given in Downie & Heath, 1965, Table 10, pp. 310-311.

[a] n = 16 in all paired comparisons.

[b] two-tailed tests.

*$p < .05$.

**$p < .02$.

***$p < .002$.

Table 4

Summary of Wilcoxon T-Values Associated with Changes in Fear of Surgery Scores from Pretreatment to Presurgery, Pretreatment to Posttreatment, and Posttreatment to Presurgery

Group	n[a]	T-Value[b]
Information		
Pretreatment to Presurgery	16 (13)	2.0*
Pretreatment to Posttreatment	16 (13)	0.0*
Posttreatment to Presurgery	16 (8)	9.0
Desensitization		
Pretreatment to Presurgery	16 (15)	2.5*
Pretreatment to Posttreatment	16 (16)	0.0*
Posttreatment to Presurgery	16 (11)	30.0
Placebo		
Pretreatment to Presurgery	16 (12)	25.5
Pretreatment to Posttreatment	16 (8)	10.5
Posttreatment to Presurgery	16 (11)	23.0
Control		
Pretreatment to Presurgery	16 (10)	12.5
Pretreatment to Posttreatment	16 (8)	9.0
Posttreatment to Presurgery	16 (7)	6.5

[a]Numbers in parentheses indicate the number of patients whose scores changed.

[b]two-tailed tests.

*$p < .01$.

Self-Reported Fear of Anatomical Destruction and Pain

A self-report measure of fear of anatomical destruction and pain was obtained on two occasions prior to admission to hospital (pretreatment and posttreatment) and twice following hospitalization (presurgery add postsurgery). Figure 3 shows the mean fear scores for each group on each of the four occasions. In order to evaluate the changes produced, a five-way factorial analysis of variance was performed on the data. The five factors were time, treatment, doctor, operation and sex, with repeated measures on the time factor. The analysis yielded an overall F value for the main effect of Time which was significant [$F(3.96) = 9.55$, $p < .001$] and, more importantly there was a significant Time-by-Treatment interaction effect [$F(9.96) = 12.08$, $p < .001$] indicating changes in fear scores between groups over the various time periods. Appendix J presents the source table derived from the analysis of variance.

In order to evaluate the changes in fear scores for each condition from pretreatment to postsurgery as well as between group differences at pretreatment, posttreatment, presurgery and postsurgery, means (presented in Table 5) derived from the interaction table of the analysis of variance were submitted to Tukey's multiple-range test using Cicchetti's (1972) adjustment. Appendix J presents all possible pair-wise comparisons. Between conditions comparisons revealed that the two experimental treatment conditions did not differ significantly from each other from pretreatment through postsurgery. Likewise, the two control groups did not differ significantly from each other at pretreatment presurgery, and postsurgery, although there was a significant difference between them

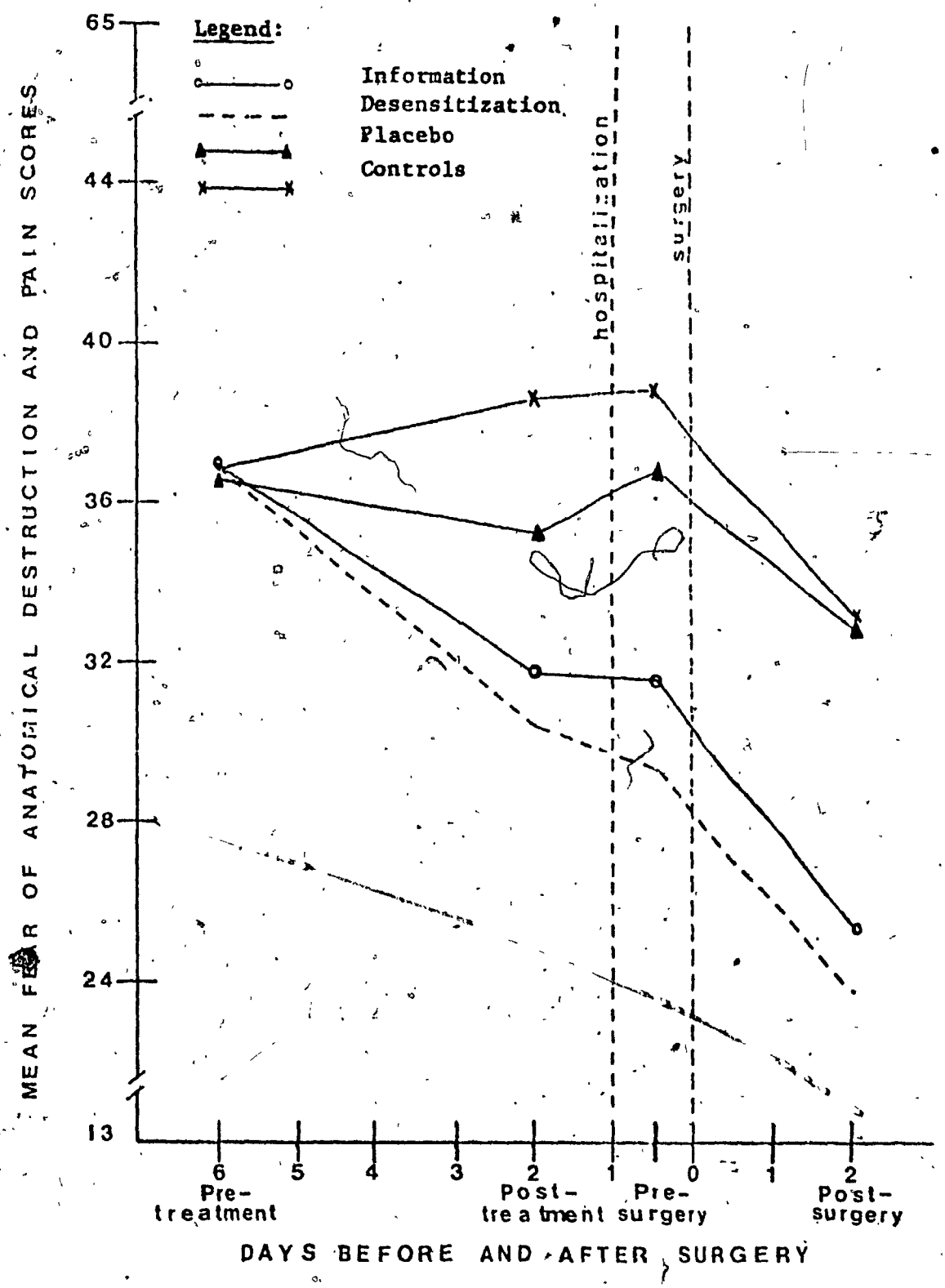

Fig. 3 Mean Fear of Anatomical Destruction and Pain Scores by Experimental Group at Pretreatment, Posttreatment, Presurgery, and Postsurgery.

Table 5

Mean Self-Reported Fear of Anatomical Destruction and Pain Scores at Pretreatment, Posttreatment, Presurgery, and Postsurgery by Treatment Conditions

	Time			
Group[a]	Pretreatment	Posttreatment	Presurgery	Postsurgery
Information	36.81	31.68	31.56	25.43
Desensitization	37.00	30.18	29.32	23.75
Placebo	36.25	35.31	36.75	32.75
Control	36.81	38.56	38.62	33.18

[a] $n = 16$ in each group

at posttreatment ($p < .05$). Furthermore, although the four groups did not differ significantly from each other at pretreatment*, the information and desensitization subjects reported significantly lower fear scores at posttreatment as compared to control subjects ($p < .05$), and this difference was maintained at presurgery and postsurgery ($p < .05$). Within conditions comparisons revealed that the control groups showed no significant change in self-reported fear from pretreatment to presurgery while both experimental groups reported significantly less fear of anatomical destruction and pain following experimental treatment ($p < .05$) and just before surgery ($p < .05$) than they reported at pretreatment. Mean fear scores following surgery decreased significantly from their levels at presurgery for all conditions ($p < .05$).

State-Trait Anxiety Inventory

STAI (A-State) Scale

A measure of self-reported situational anxiety was obtained twice prior to admission to hospital (pretreatment and posttreatment) and twice following hospitalization (presurgery and postsurgery). The mean anxiety scores for each group before and after treatment as well as prior to and following surgery are presented in Figure 4. A five-way factorial analysis of variance was performed on the data in order to evaluate the changes produced. The five factors were time, treat-

* Subjects were assigned to groups on the basis of level of fear of anatomical destruction and pain and hence the groups were equated at pretreatment with respect to this variable.

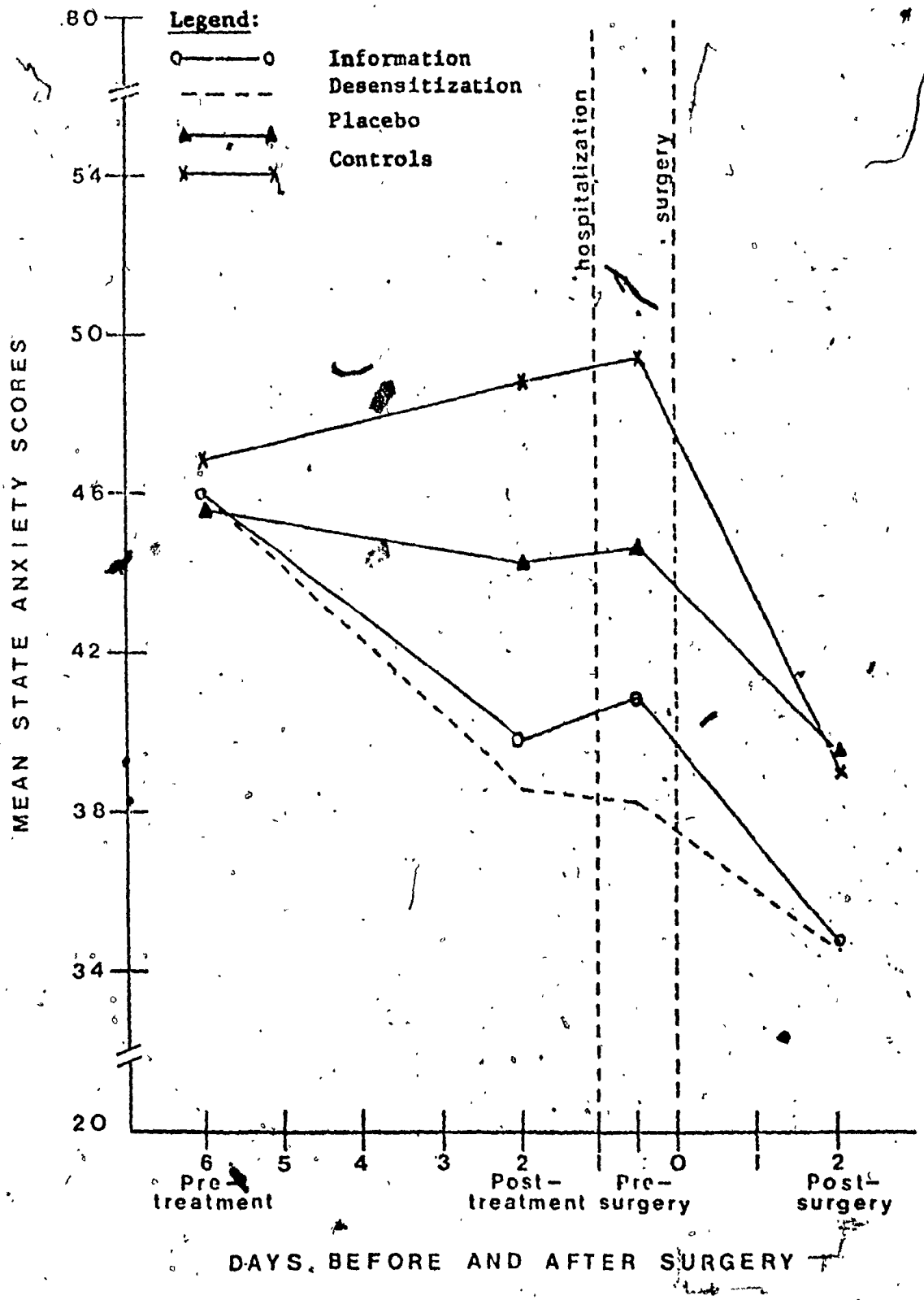

Fig. 4 Mean State Anxiety Scores by Experimental Groups at Pretreatment, Posttreatment, Presurgery, and Postsurgery.

ment, doctor, operation and sex, with repeated measures on the time factor. The analysis yielded a significant Time-by-Treatment interaction [F (9.96) = 10.48, $p < .001$] and a significant main effect of Time [F (3.96) = 12.12, $p < .001$]. The source table derived from the analysis of variance of state anxiety scores is present in Appendix J.

In order to evaluate the changes in anxiety scores for each condition from pretreatment to postsurgery as well as between group differences at pretreatment, posttreatment, presurgery, and postsurgery, Tukey's multiple-range test with Cicchetti's (1972) adjustment was applied to the means which are presented in Table 6. Paired comparisons between conditions (Appendix J) revealed that there was no significant different between the information and desensitization groups from pretreatment to postsurgery. The two control groups did not differ significantly from each other before experimental treatment and following surgery although there was a significant difference between them at posttreatment ($p < .05$) and presurgery ($p < .05$). Furthermore, the experimental groups did not differ significantly from the control groups at pretreatment. However, following experimental treatment, both experimental groups reported significantly lower anxiety scores than control subjects ($p < .05$) and this difference was maintained at both presurgery ($p < .05$) and following the operation ($p < .05$). Within conditions comparisons revealed that there was no significant change in self-reported anxiety from pretreatment through presurgery for the control groups whereas both experimental groups reported significantly less anxiety following experimental treatment ($p < .05$) and prior to surgery ($p < .05$) than at pretreatment. All conditions reported a significant drop in state

Table 6

Mean State Anxiety Scores at Pretreatment, Posttreatment, Presurgery, and Postsurgery by Treatment Conditions

	Time			
Group[a]	Pretreatment	Posttreatment	Presurgery	Postsurgery
Information	46.06	39.87	40.93	34.87
Desensitization	46.00	38.62	38.31	34.50
Placebo	45.81	44.18	44.68	39.62
Control	46.75	48.62	49.50	39.00

[a] n = 16 in each group

anxiety from presurgery to postsurgery ($p < .05$).

STAI (A-Trait) Scale

Another dependent variable in this experiment was a measure of self-reported general anxiety obtained on four occasions: 1) prior to experimental treatment, 2) following treatment, 3) before surgery, and 4) after surgery. The mean trait anxiety scores for each group on the four occasions are presented in Figure 5. A five-way factorial analysis of variance was performed on the data in order to evaluate the changes produced. The five factors were time, treatment, doctor, operation, and sex, with repeated measures on the time factor. The analysis yielded a significant overall F value of 3.21 [F (3.96) = 3.21, $p < .05$] for the main effect of Time and a significant Time-by-Treatment interaction [F (9.96) = 2.96, $p < .01$]. Appendix J presents the source table derived from the analysis of variance of trait anxiety scores.

Tukey's multiple-range test with Cicchetti's (1972) adjustment was applied to the mean in the interaction table (present in Table 7) in order to evaluate the changes in trait anxiety scores within and between conditions. Within conditions comparisons revealed that three of the four groups showed no significant changes in the trait anxiety measure from pretreatment through to postsurgery. Desensitization subjects showed a single decrease in trait anxiety from pretreatment to presurgery which was significant ($p < .05$) although their anxiety scores at presurgery were not significantly different from those at posttreatment or postsurgery.

The four treatment groups did not differ significantly from each other at either pretreatment or posttreatment. At presurgery,

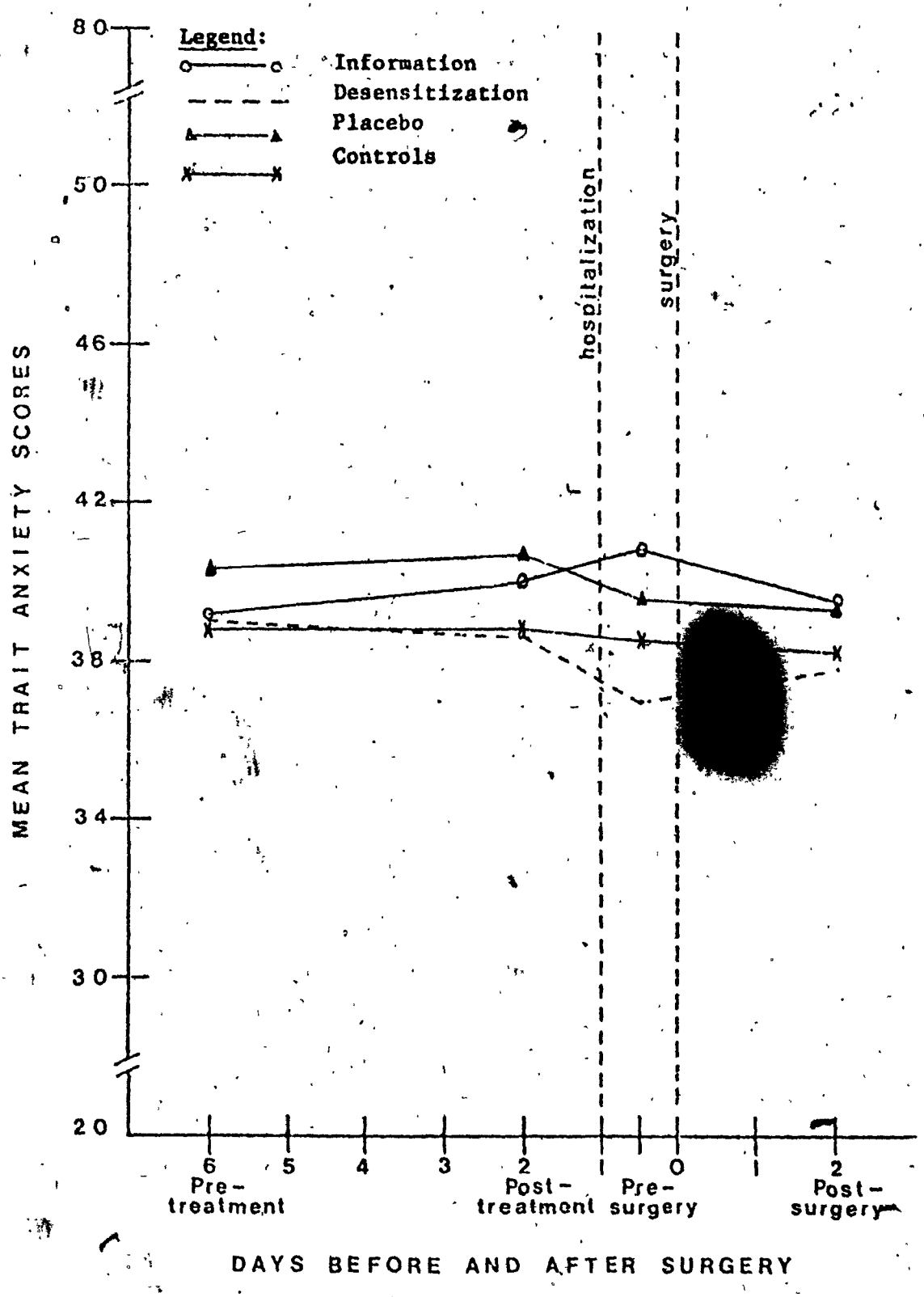

Fig. 5 Mean Trait Anxiety Scores by Experimental Groups at Pretreatment, Posttreatment, Presurgery, and Postsurgery.

Table 7

Mean Trait Anxiety Scores at Pretreatment, Posttreatment, Presurgery, and Postsurgery by Treatment Conditions

Group[a]	Time			
	Pretreatment	Posttreatment	Presurgery	Postsurgery
Information	39.31	40.06	40.88	39.63
Desensitization	39.25	38.68	37.00	37.88
Placebo	40.18	40.38	39.81	39.56
Control	38.93	38.93	38.75	38.18

[a] n = 16 for each group

desensitization subjects reported a significantly lower mean trait anxiety score than subjects in the other three groups ($p < .05$). In addition the mean trait anxiety score for the information group was significantly higher than that of the control group ($p < .05$), although it did not differ significantly from that of the placebo group. At postsurgery, the desensitization group differed significantly only from the information group ($p = .05$). However, neither of the experimental groups differed from the control groups at postsurgery. Likewise, no significant differences were found between the control groups at either presurgery or postsurgery. These comparisons are presented in Appendix J.

Number of Postoperative Days in Hospital and Amount of Medication

Figures 6 and 7 present the mean number of days in hospital following surgery and the mean amount (in milligrams) of total analgesic medications taken after the operation by patients in each treatment group. A one-way analysis of variance was performed on each of the dependent variable measures in order to evaluate the changes produced by the experimental conditions. The analyses revealed that there was no significant difference between groups in either number of days in hospital following surgery [F (3.60) = 0.80, $p > .05$] or amount of medications consumed after the operation [F (3.60) = 1.08, $p > .05$]. When each of the medications (in milligrams) were individually submitted to statistical analysis using one-way analysis of variance, no significant differences between conditions were found Demerol: [F (3.60) = 0.39, $p > .05$; Gravol: F (3.60) = 0.62, $p > .05$; Leritene: F (3.60) = 1.17, $p > .05$; Nembutal: F (3.60) = 0.67, $p > .05$; Darvon: F (3.60) = 0.24, $p > .05$]. Appendix J presents the source tables.

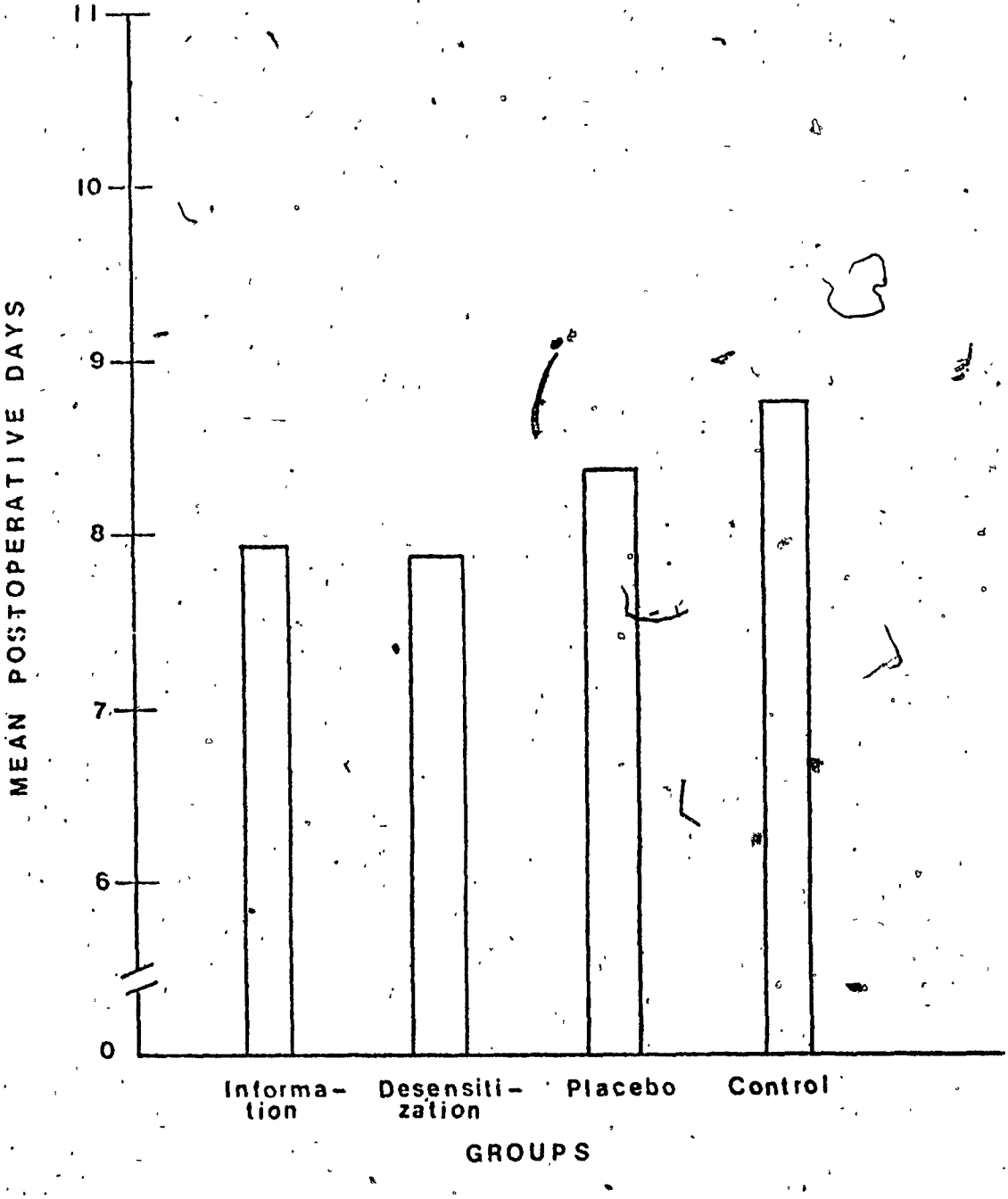

Fig. 6 Mean Number of Postoperative Days in Hospital by Experimental Groups.

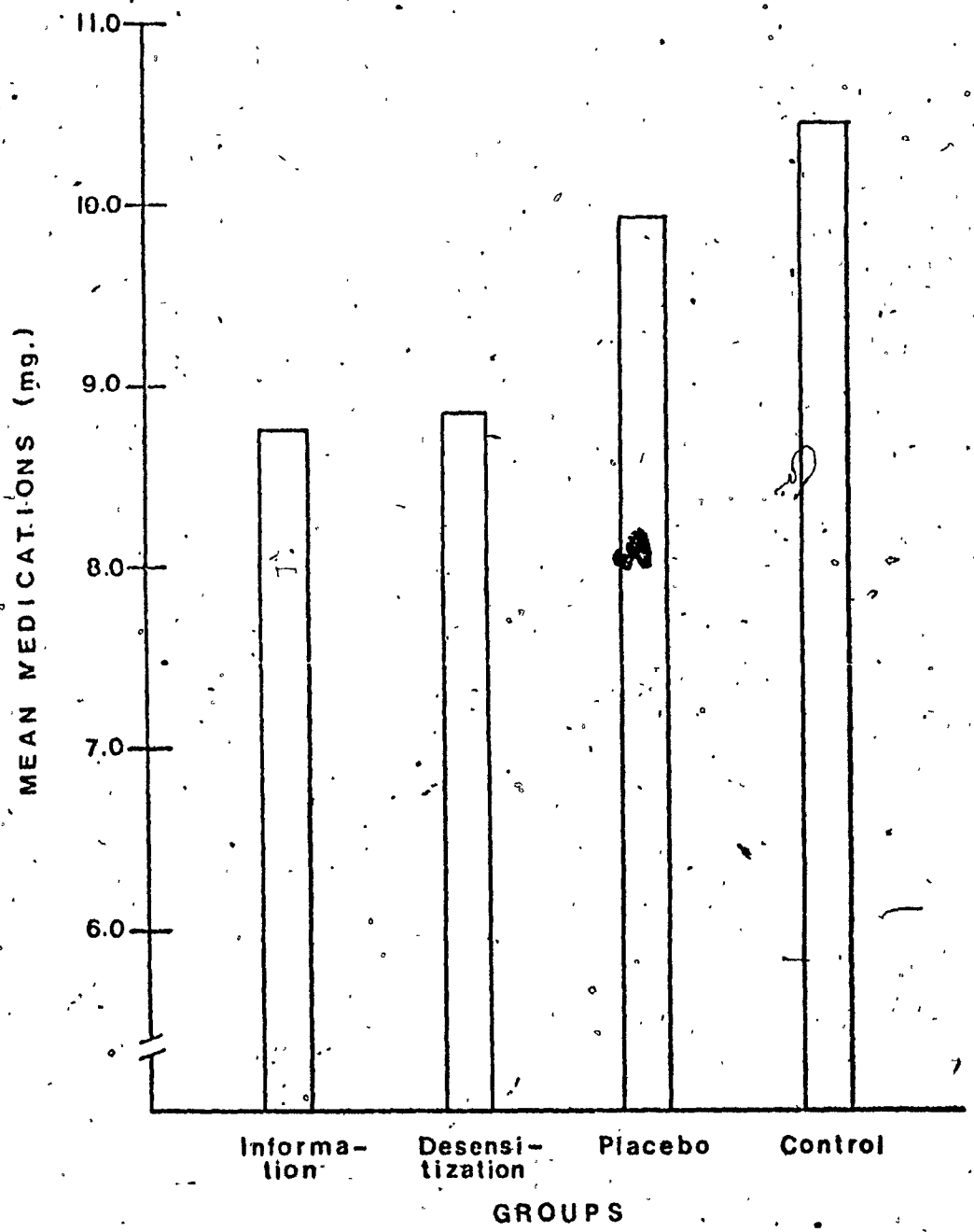

Fig. 7 Mean Amount of Medications in Milligrams Taken Postoperatively by Experimental Groups.

Discussion

In this experiment preparatory information and systematic desensitization quite consistently produced marked reductions in fear of surgery, anatomical destruction and pain, and state anxiety prior to surgery. Furthermore, there was essentially no difference between the effectiveness of the two methods of intervention and both tended to affect the preoperative self report measures of emotional response differently from the placebo treatment and no treatment.

The emotional reactions to surgery of the test-retest control subjects reflect the course of arousal responses in the absence of therapeutic intervention. The data showed that indices of emotionality (fear of surgery, fear of anatomical destruction and pain, and state anxiety) for control subjects increased (although not significantly) over the three occasions on which they were tested prior to surgery, reaching a peak on the evening before surgery. This pattern of arousal to threat is consistent with a study by Epstein (1962) who studied the emotional responses of parachute jumpers before and after the jump. Epstein reported increasingly higher levels of self-reported fear as the moment for jumping approached. In the present study, the emotional reactions of the placebo group closely followed those of the test-retest control group. In contrast, an examination of self reports of emotional responses of subjects who received either preparatory information or systematic desensitization showed that surgery-related fears and situational anxiety decreased significantly following experimental intervention at home. Furthermore, there were no significant changes in these responses from posttreatment to presurgery indicating that the lower

level of fear of surgery, anatomical destruction and pain, and state anxiety attained by the experimental groups following intervention generalized across time and location (two days later, after subjects had been admitted to hospital).

Following surgery, subjects in all four groups reported significantly less fear of anatomical destruction and pain and a lower level of situational anxiety than at presurgery. The data also showed that the level of surgery-related fears for both treatment groups after surgery was significantly lower than that reported by control subjects. The fact that self reports of surgery-related fears and state anxiety were significantly lower following surgery compared to before, for all conditions, was consistent with a number of other studies which obtained various measures of emotional response before and after surgery (Auerbach, 1971; DeLong, 1970; Johnson, Leventhal, & Dabbs, 1971; Spielberger, Auerbach, Wadsworth, Dunn, & Taulbee, 1969; Wolfer & Davis, 1970). Johnson et al. (1971) found that scores on an adjective check list used to measure "fear" were higher the morning of the operation than on four postoperative days. Similarly, Wolfer and Davis (1970) found that scores on a "fear-anxiety" rating scale were highest the day before surgery and decreased on two consecutive postoperative days. Scores on the State-Trait Anxiety Inventory A-State scale taken five days after surgery were found by DeLong (1970) to be significantly lower than they were the day before surgery. Likewise, Auerbach (1971) as well as Spielberger and his associates (1969) found that state anxiety scores 24 hours before surgery were higher than they were 48 hours following surgery.

In the present experiment there appeared to be considerable

consistency in the results obtained on the various self-report measures used. This is not surprising in view of the fact that the various rating scales were all attempting to measure aspects of emotional response to surgery. It appears that subjects who reported feeling terrified of their upcoming operation also reported a high level of fear of anatomical destruction and pain. Elevated state anxiety scores also seemed to form a part of these reactions.

The finding that pain perception was altered by preparatory information is consistent with a large number of studies which have demonstrated the influence of cognitive factors on both experimentally-induced pain (Blitz & Dinnerstein, 1968, 1971; Johnson, 1973; Staub & Kellett, 1972) and pain of pathological origin (Andrew, 1970; DeLong, 1970; Egbert et al, 1964; Johnson & Leventhal, 1974). The interesting observation in the present study was the fact that essentially there was no difference in effectiveness between preparatory information and systematic desensitization in modifying perception of pain. Whereas all groups at pretreatment were equivalent on reported pain severity arising from their illness, following experimental treatment subjects in both treatment groups reported feeling less severe pain than test-retest control subjects. Subjects who had received prepatatory information also differed significantly in reported pain severity from placebo subjects following experimental treatment. Desensitization subjects reported feeling less severe pain than subjects in the placebo group but this difference fell just short of significance.

A result which was difficult to interpret was the slight but significant reduction in trait anxiety following systematic desensitization. In the present experiment, desensitized subjects reported a

significant decrease in trait anxiety from pretreatment to presurgery. Their level of trait anxiety at presurgery was not significantly lower than it was at post reatment or postsurgery, however. Trait anxiety level of subjects in the information, placebo and control groups underwent no significant changes at any point in the testing. These latter results are consistent with a study by Spielberger et al., (1969) who found trait anxiety to be a relatively stable personality characteristic impervious, in particular, to changes from before to after surgery. The fact that in the present experiment systematic desensitization seemed to decrease trait anxiety prior to surgery may indicate some instability in the measure.

Finally, there was a tendency for subjects in both the information and desensitization groups to have a shorter postoperative convalescence period and to consume fewer analgesic medications following surgery as compared to subjects in the placebo and test-retest control groups, although these differences did not reach an acceptable level of significance. These results are consistent with several recent studies which found no clear and consistent relationships between subjects' self-reports of reactions to surgery and objective indices of recovery (Cohen & Lazarus, 1973; Johnson, Leventhal, & Dabbs, 1971). On the other hand, a number of studies have found that the provision of information prior to surgery significantly reduced the number of postoperative days in hospital and decreased postoperative consumption of analgesic medication (Andrew, 1970; DeLong, 1970; Egbert et al, 1964).

There are several possible explanations for the lack of consistency between the data of this experiment and those of Andrew (1970),

DeLong (1970) and Egbert and his associates (1964). First, methodological differences between this study and the foregoing make direct comparisons difficult. Both Egbert and DeLong presented preparatory information to their subjects 24-48 hours before surgery. Subjects in Egbert's study actually continued to receive information, suggestion and encouragement after surgery. In contrast, subjects in the present study received preparatory information in their homes for five days before admission to hospital. Hence, both the location in which subjects received the information and the length of time between presentation of information and surgery differed between this study and those of DeLong and Egbert. In Andrew's (1970) study, preparatory information was provided six days before surgery. She found that only one group, prepared neutrals, had a shorter convalescence period and consumed fewer analgesic medications. Neither her informed sensitizers nor avoiders benefitted from the presentation of information. Furthermore, although duration of stay in hospital and rate of consumption of analgesic medication are certainly important indices of the course of recovery, they are certainly partially determined by factors other than the patient's moment to moment condition. The prescription of analgesic drugs for recovering surgery patients and timing of discharge from hospital may be fairly standardized on some surgery wards. Patients who would like to remain in hospital longer than the prescribed period of time may be sent home despite their subjective feelings of discomfort. Conversely, there are those patients who may feel ready to leave hospital before the average discharge date but are not encouraged to do so. Medications, too, may be given routinely to postoperative patients whether requested or not. Under these circumstances it is difficult to compare studies on the effects of

psychological treatments presented prior to surgery using dependent variables such as speed of recovery and rate of consumption of analgesic drugs. In fact, it may be more precise to rely on patients' subjective self reports of fear, pain and discomfort, which Hilgard (1969) has observed to be "most reliable upon repetition, more lawfully related to changed conditions, and most discriminating of fine differences."

One final aspect of the data which bears further comment is the finding that, overall, systematic desensitization did not differ from preparatory information in altering pre- and postoperative reactions to surgery. The data suggest that repeated exposure to emotion-provoking thoughts combined with relaxation appears to be as effective a technique for modifying pain perception and emotional responses to surgery as is a cognitive preparation method. Other studies comparing information-giving with desensitization have produced rather inconsistent results, sometimes in favor of information, sometimes desensitization (Blanchard, 1970; Staub, 1968).

The manner in which information reduces emotional responses is still a subject of speculation. Some authors have suggested that information provides an opportunity for subjects to intellectually reappraise the anxiety-provoking situation, thereby enabling them to "short-circuit" the threat by changing its meaning (Lazarus, 1966). Others have proposed that preparatory communications alter subjects' expectations of the fear-provoking or aversive situation, thereby reducing the incongruency between what subjects expect and what they actually experience (Johnson, 1973).

The effectiveness of desensitization seems to be best accounted for by the principle of counterconditioning (Davison & Wilson, 1973; Wilson & Davison, 1971) whereby the arousal potential of threatening stimuli becomes "neutralized" when subjects have the opportunity to repeatedly associate the anxiety-arousing stimuli with activities incompatible with emotional responses. Despite these differences in proposed mechanisms, there is undoubtedly some overlap. In the present experiment, both information-giving and systematic desensitization may have provided subjects with repeated exposure to fear-provoking thoughts about surgery, thereby stimulating a process of cognitive rehearsal or cognitive counterconditioning (Bandura, 1969). Further research in which these two methods are applied to different kinds of fear may help to clarify differences in the processes underlying each.

The present experiment generates a number of other theoretical questions and practical implications. The first concerns the comparative effectiveness of desensitization and preparatory information in reducing emotional reactions to surgery for patients who use different psychological defenses to manage their anxiety. For example, both Andrew (1970) and DeLong (1970) found that subjects who typically tended to avoid or deny threat had a significantly poorer recovery from surgery (required more medication and complained more) if they were given information preoperatively. It would be interesting to see whether desensitization could effectively alter emotional reactions to surgery regardless of individual differences such as cognitive coping style.

Another question which is generated by the results of this study is the question of the range of problems to which information-

giving and desensitization may be applicable. There is evidence to show that information alters pain perception (Staub & Kellett, 1972) and reduces emotional reactions to fear-provoking stimuli (Lazarus, Opton, Nomikos & Rankin, 1965) although it has had equivocal success as a clinical therapeutic technique (Blanchard, 1970; Staub, 1968). The present study offers evidence that the two techniques are essentially equally effective in altering pain of pathological origin and reducing emotional reactions to surgery. Future research might continue to investigate the comparative effectiveness of the two methods on reactions to aversive procedures other than surgery, such as certain noxious medical and dental examinations.

Finally, further research is needed in which information and desensitization techniques are compared with regard to efficiency or economy of time and effort. The results of this study support those of Robinson and Suinn (1969) who reported successful desensitization within five days. It should also be noted that Andrew (1970) and DeLong (1970) were able to improve recovery from surgery for some subjects after only 20 minutes of tape-recorded preparatory information related to surgery. Since the efficiency of these techniques is a valuable practical consideration, especially in the area of health care, further research should address itself to this question. Medical personnel might take note of this body of evidence, further supported by the present findings, which suggests that improved patient comfort and rate of recovery from surgery may be purchased at the cost of little effort.

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Appendix A

Explanation of Research to Subjects

You are being asked to complete the following questionnaires in conjunction with an important study which is being conducted by the departments of Psychiatry and Surgery at the Jewish General Hospital. Your cooperation in this study is requested and has the approval of your doctor.

Briefly, our eventual goal is to make patients more comfortable before surgery. We are interested in people who experience anxiety before having an operation. This reaction has been found to exist in most people, especially before surgery. You as an individual may or may not be feeling upset or worried right now. If you are, though, or even if you are not, we would be interested in knowing your true feelings. The following questionnaires are designed to help you express your feelings.

Needless to say, your answers will be kept strictly confidential.

Thank you for your cooperation.

Appendix B

General Information Questionnaire

General Information Questionnaire

Name:..... Age:..... Sex:.....

Date:..... Height:..... Weight:.....

Address:.....

Telephone No.:.....Marital Status:.....

Religion:.....Country of Birth:.....

If your country of birth is other than Canada, how many years have you lived in Canada?.....

Name of surgeon:.....

Circle the operation you are about to have: gall bladder

hernia

Appendix C

Pain Severity Scale

Pain Severity Scale

If you had to measure the severity of your pain arising from your present illness during the past week, how bad would you say it was? Check only one number from 1 (no pain) to 7 (unbearable pain).

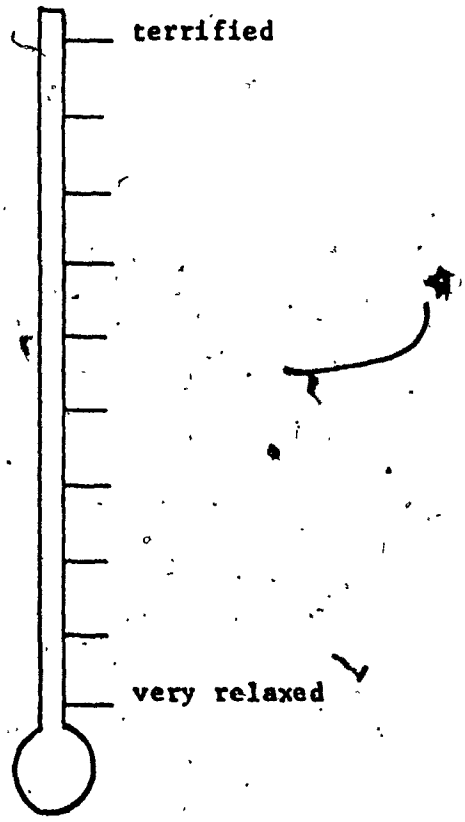
no pain							unbearable pain
1	2	3	4	5	6	7	

Appendix D

Fear Thermometer

Fear Thermometer

Imagine that you have a 10-point thermometer which can accurately measure feelings. Using the thermometer below show how afraid you are about your upcoming operation <u>at this very moment.</u>



Appendix E

Fear of Anatomical Destruction and Pain Scale

Fear of Anatomical Destruction and Pain Scale

The items in this questionnaire refer to things and experiences that may cause fear or other unpleasant feelings. Put a check mark (✓) in the column that describes how much you are disturbed by it nowadays. Remember, use only <u>one</u> (1) check mark for indicating just how afraid you are of <u>each</u> item <u>nowadays</u>.

	not at all	a little	a fair amount	much	very much
1. sick people					
2. dead animals					
3. animal blood					
4. doc					
5. prospect of a surgical operation					
6. human blood					
7. receiving injections					
8. open wounds					
9. cemeteries					
10. medical odors					
11. witnessing surgical operations					
12. seeing other people injected					
13. dead people					

Appendix F

State-Trait Anxiety Inventory (STAI) Form X

STAI A-State and STAI A-Trait

STAI A-STATE

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	not at all	somewhat	moderately so	very much so
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I am regretful	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel rested	1	2	3	4
9. I feel anxious	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel "high strung"	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel over-excited and rattled	1	2	3	4
19. I feel joyful	1	2	3	4
20. I feel pleasant	1	2	3	4

STAI A-TRAIT

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

		almost never	sometimes	often	almost always
1.	I feel pleasant	1	2	3	4
2.	I tire quickly	1	2	3	4
3.	I feel like crying	1	2	3	4
4.	I wish I could be as happy as other seem to be	1	2	3	4
5.	I am losing out on things because I can't make up my mind soon enough	1	2	3	4
6.	I feel rested	1	2	3	4
7.	I am "calm, cool, and collected"	1	2	3	4
8.	I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
9.	I worry too much over something that really doesn't matter	1	2	3	4
10.	I am happy	1	2	3	4
11.	I am inclined to take things hard	1	2	3	4
12.	I lack self-confidence	1	2	3	4
13.	I feel secure	1	2	3	4
14.	I try to avoid facing a crisis or difficulty	1	2	3	4
15.	I feel blue	1	2	3	4
16.	I am content	1	2	3	4
17.	Some unimportant thought runs through my mind and bothers me	1	2	3	4

	almost never	sometimes	often	almost always
18. I take disappointments so keenly that I can't put them out of my mind.....	1	2	3	4
19. I am a steady person.....	1	2	3	4
20. I become tense and upset when I think about my present concerns.....	1	2	3	4

Appendix G

Text of Information Tape for Patients Undergoing Hernia and Gall Bladder Surgery

Hernia Information

Session 1

Please seat yourself comfortably. First, let me take this opportunity to thank you for participating in this study. I hope that you will find our meetings enjoyable and I am certain that what you will learn during our sessions will be of great help to you, especially during the next two weeks, during your operation and recovery period. Today, I would like to do two things. First, I would like to explain to you what we will be doing together during the next few days. Then, I would like to begin clarifying your problem to you in some detail, the reasons for your condition and your operation. Before we begin though, let me assure you that both your doctor and I are very much interested in your comfort and well-being during your upcoming hospitalization, and it is for this reason that we feel that these sessions with me will be of enormous benefit to you. We at the Jewish General Hospital are very much interested in your comfort and well-being during your stay with us.

Now, let me tell you a little bit about the rest of this session and our next four together. In about five days you are going to have your operation. Most people who are about to have an operation, even a minor one, get a little nervous about it. Of course, there are some people who do not feel nervous about operations at all. Nevertheless, there are many who, even when they think about an operation, feel a little nervous. In most cases, the reason for this is that they don't have enough information about their condition and the operation itself. In other words, they are frightened of the unknown.

We feel that if a patient is given more information about his illness and the operation, he will tend to feel less nervous about it. This technique, information-giving, has been used before with many different types of people and we have always had good results. Because of this, both your doctor and I feel that these few sessions with me will be very beneficial for you and, of course, very safe. Let me say again that I hope you will enjoy these few sessions with me and I am quite certain that they will be of enormous value to you.

Most people don't really know what a hernia is. In fact, even those people who are about to have an operation to correct their own hernia know very little about this condition or what to expect afterwards. During today's session then, I am going to give you a better idea of what a hernia is. We are going to begin with a definition of hernia. Then I will tell you about the incidence of hernias in general and how the condition probably arose in you.

Hernia is one of the most common ailments with which mankind is afflicted. It can be defined in one of two ways. First, a hernia may be a weakness or an opening in an enclosing layer of tissue. The hernia may also refer to the contained organ. This is what is known as a strangulated hernia. Hernias in general are over five times more common in men than in women and often occur in childhood.

To summarize what I have just said, a hernia means a rupture. Hernias usually occur in the groin area and there are three types of hernias. First, if the organ inside the hernia can be returned to its normal place, then it is called a reducible hernia. If the organ cannot be returned to its normal place, then the hernia is said to be irreducible or incarcerated. And finally, if the blood supply to the contained organ

is cut off, the hernia is known as a strangulated hernia. Hernias may occur in childhood and are five times more common in men than in women.

The next question in your mind, probably, is how do hernias begin. A hernia or a rupture can be either congenital (you can be born with it) or it can be acquired. Most hernias, though, seem to be congenital. By congenital, we mean that hernias are related to some basic tissue defect present at birth, even though the actual bulging hernia or rupture may not be noted until well into the adult years. In males, prior to birth, while the baby is still developing, the testicles are formed in the belly cavity next to the kidneys. At some time before birth, the testicles come down through an opening in the groin area through the muscles of the belly wall and take their place in the scrotal sac. This opening in the region of the groin is a potentially weak area. As the testicles descend, they bring the sac of the belly wall lining down with them. In most people this sac shrivels up and disappears, but in people with hernias, the sac remains. At a later date, when there is some pressure or strain, either sudden or over a period of time, the sac balloons open, the hernia becomes obvious and symptoms occur. The most frequent symptoms, as you probably well know, are pain in the groin, a dragging sensation or an obvious bulging. Hernias may also develop secondarily, though, during later life from such events as strenuous labor or vigorous physical activity.

At first the rupture is small, but it gradually increases in size. In fact, the rupture may vary in size from a marble to a child's head. The swelling consists of three parts: the covering, the sac and the contents. The coverings are the structures which form the abdominal wall at the part where the rupture occurs. This covering may be thinned

and matted together as a result of pressure or it may be thickened from constant inflammation. The sac is composed of membranes lining the abdominal cavity or what is known as peritoneum. The neck of the sac is the narrowest portion where the peritoneum forming the sac becomes continuous with the general peritoneal cavity.

So, to summarize now, a hernia may be the result of some basic tissue defect present at birth or it may be caused by strenuous labor or vigorous physical activity. The rupture or hernia is usually quite small at first, although it gradually increases in size.

This is the end of our first session. Up to now you have learned not only a definition of your illness, but, in addition, you have found out how frequently it occurs and how it begins. In our next session, I will tell you more not only about your illness, but also about the operation. Thank you very much and see you tomorrow.

Session 2

Although a hernia operation is a common procedure, many patients who are about to have this surgery know very little about it. Today, I would like to speak to you about the reasons for surgery and some of the dangers involved if one does not go through surgery if he has a hernia. But first, let me very briefly summarize what I spoke to you about yesterday.

A hernia, I mentioned, means a rupture. Hernias usually occur in the groin area and there are three types of hernias. First, there is the reducible type. This is where the organ inside the hernia can be returned to its normal place. Second, there is the irreducible or incarcerated hernia, where the organ inside the hernia cannot be returned

to its normal place. Then finally, there is the strangulated hernia where the blood supply is cut off to the contained organ. In all probability, what you have is a reducible or incarcerated hernia. You probably don't have a strangulated hernia and I will just talk about it for your own information.

Hernias, I mentioned, may occur in childhood and are five times more common in men than in women. They are usually the result of some basic tissue defect present at birth. In this case, we say that the origin is congenital. Hernias though, may simply be acquired as a result of strenuous labor or vigorous physical activity. The rupture, whatever its origin, is usually quite small at first, although it gradually gets bigger and bigger. The swelling or the part that is visible to you consists of three parts: the covering, the sac and the contents of the hernia. As I mentioned before, a hernia may be reducible, irreducible or incarcerated, or strangulated. The reducible hernia is the one in which the contents can be pushed back into the abdomen. In some cases, reduction is easy, while in others, it is more difficult. At any moment, a reducible hernia may become irreducible.

With a reducible hernia, there is a soft compressible bulge which gets bigger when the person is standing or sitting up and smaller when he is lying down. As a rule, the reducible hernia causes no trouble during the night when the person is lying down. It gives an impulse on coughing and when the contents of the intestines are pushed back into the abdomen, one can feel a gurgling sensation with his fingers.

Two treatments can be used for a reducible hernia. The first is what is known as the palliative treatment, which consists in pushing the contents of the hernia back into the abdomen and applying a truss or

elastic bandage to prevent the contents from escaping. The younger the patient, the more chance there is of the truss curing the hernia. The truss may generally be left off at night, but should be put on in the morning before the patient leaves his bed. Once the hernia has been returned once and is not allowed to come down again, there is a probability of an actual cure taking place. However, if the hernia is allowed to come down occasionally, as it may do even during the night following a cough or from the patient turning suddenly in bed, the weak spot is again opened and the improvement which may have been going on for weeks, is undone.

Other times, though, it is impossible to keep the hernia up by means of a truss and an operation becomes necessary. The operation is spoken of as the radical treatment of hernia as opposed to the so-called palliative treatment by means of a truss.

So, to summarize now, a hernia may be reducible, incarcerated or strangulated. With a reducible hernia, its contents can be pushed back into the abdomen. Two treatments can be used to cure a reducible hernia. The palliative treatment, or the radical treatment. The palliative treatment, as I mentioned, consists of pushing the contents of the sac into the abdomen and applying an elastic bandage to prevent the contents from escaping. The probability of an actual cure taking place is high if the patient is young and if after the hernia has been returned once it is not allowed to come down again. In the case that it is impossible to keep the hernia up by means of the elastic bandage or truss, an operation becomes necessary.

In an irreducible hernia, the main symptom is a swelling of long-standing and of perhaps large size in which the contents of the bulge

cannot be pushed back into the abdomen. The reason why this type of hernia is irreducible is usually due to its large size. Such a hernia is a constant source of danger. For example, some external source may injure its contents or the hernia may at times become strangulated. The contents of the hernia, being so large, may also inflame and then strangulation of the hernia may occur secondarily to the inflammation. The symptoms of an irreducible or incarcerated hernia are dragging sensations which one can feel in the abdomen, colic and constipation. When an irreducible hernia becomes painful and tender, a local inflammation of the abdominal membrane has occurred. This condition resembles in many of its symptoms, a case of strangulation. The only safe treatment, in this case, is an operation.

To summarize then, whereas reducible hernia can be treated by means of a truss, an irreducible or incarcerated hernia must be corrected surgically in order to prevent injury to it, strangulation of its content, or inflammation giving rise to uncomfortable symptoms.

A strangulated hernia is one in which the circulation of blood through the hernia contents is interfered with by the pinching at the narrowest part of the passage. The interference is at first very slight but quickly becomes worse. The pinched bowel in the hernial sac swells just like a finger does when a string is tightly wound around its base. A strangulated hernia needs to be operated immediately. For the strangulated hernia, the symptoms are nausea and vomiting. You may also feel a twisting, burning pain in the region of the navel, intestinal obstruction and pain on pressure over the bulge. The abdomen will be tense and drumlike and there will be no impulse in the bulge on coughing because its contents are practically pinched off from the general

abdominal cavity. As I mentioned before, strangulation must be corrected by immediate surgery. In all probability, the condition you have is nothing more serious than a reducible, or an irreducible hernia. In other words, you probably don't have a strangulated hernia.

Now, this is the end of our second session. But before you leave, let me just summarize what I've just told you. There are three types of hernias: reducible hernias, irreducible or incarcerated hernias, and strangulated hernias. A reducible hernia can be corrected by applying a truss or elastic bandage to push the contents of the hernia back into the abdomen. This method can only work if the hernia is never allowed to come down again. If the reducible hernia cannot be held up by means of a truss, an operation becomes necessary. An irreducible or incarcerated hernia, on the other hand, must be corrected by surgery, because due to its large size, it is liable to injury or strangulation. In a strangulated hernia, the circulation of blood through the hernial contents is interfered with and it must be corrected by immediate surgery.

Patients are often not familiar with hospital procedures and do not know exactly what to expect before surgery. As a result, they may become upset or frightened by routine procedures. I cannot tell you exactly what will happen, since your surgeon will evaluate your medical history and your current health and then prescribe what he believes is best for you rather than follow a set routine. However, what I can do is give you a general idea of what happens to the average man or woman who has a hernia operation and what they can do to improve their recovery. Tomorrow then, I will tell you about the treatments and procedures before the operation. That is, I will be telling you about the typical hospital routine which you will encounter before your operation. This

information will help you to adjust while you will be in the hospital. Thank you very much and see you tomorrow.

Session 3

Patients are often not familiar with hospital procedures and do not know exactly what to expect before surgery. As a result, they may become upset or frightened by routine procedures. I can't tell you exactly what will happen since your surgeon will evaluate your medical history and your current health and prescribe what he believes is best for you rather than following a set routine. However, what I can do is give you a general idea of what happens to the average surgery patient who has a hernia operation and what they can do to improve their recovery. Before I do that though, I am sure you would like me to very briefly go over what I talked about in our first two sessions together.

A hernia, I indicated, means a rupture. Hernias may occur in childhood and are five times more common in men than in women. They are usually the result of some basic tissue defect present at birth. In this case, the origin of the hernia is considered to be congenital. It is possible though, to simply acquire a hernia as a result of strenuous labor or vigorous physical activity. Whatever its origin, the rupture is usually quite small at first, although it gradually gets bigger and bigger. The swelling, or the bulge, consists of three parts: the covering, the sac and the contents of the hernia.

Generally speaking, hernias usually occur in the groin area. There are three types of hernias: first, the reducible hernia, second, the irreducible or incarcerated hernia and third, the strangulated hernia. The reducible hernia can be corrected by pushing the contents of the

hernial sac back into the abdomen and applying an elastic bandage or truss to prevent the contents from escaping. This technique can only work however, if the hernia is never allowed to come down again. If the reducible hernia cannot be held up by means of a truss, an operation becomes necessary. An irreducible or incarcerated hernia on the other hand, must be corrected surgically because of its large size. In a strangulated hernia, the circulation of blood through the hernial contents is interfered with and it, too, must be corrected by immediate surgery. It is obvious then, that in most of the cases, the only way in which the hernia can be corrected is by surgery. In fact, if they are not operated upon, hernias only tend to get bigger and bigger. What the doctor does during the operation is he empties the sac of its contents and then removes the sac entirely. Then he simply closes the opening into the abdomen by strong sutures. Experience has shown that very few ruptures or hernias are unsuited for treatment by operations. At this point, I'm sure that you would be interested in knowing about the preparations made before the operation.

Patients are usually admitted to the hospital on the day before surgery. Before the operation, the skin in the area of the hernia must be made as clean as possible. For this reason, the patient himself or a nurse will wash the area thoroughly several times with a special surgical soap on the day before the operation. This is done, of course, in order to prevent infection. Secondly, the surgeon who is to perform the operation and the anaesthetist, the physician who will administer the anaesthetic, must decide which form of anaesthesia is best suited for the individual patient and thirdly, the anaesthetist will discuss the details of the operation on the day before the operation. He will want to know

the patient's previous experiences with anaesthetics if any, and his preferences. Now, before I go on to describe the steps immediately preceding the operation, let me stop for a brief moment and summarize what I've just been saying.

I mentioned that patients are usually admitted to the hospital on the day before surgery. On the day before surgery, too, you or a nurse will wash the area which will be operated with a surgical soap in order to prevent infection. Then, your surgeon and the anaesthetist will decide on the best type of anaesthesia for you. And finally, the anaesthetist will discuss the details of the operation with you.

To go on now, you will not be allowed to eat or drink anything beginning at midnight before the operation in order to prevent nausea or vomiting at the time of the operation. Also, since some people are apprehensive and sleep poorly in a strange place, your physician will probably order a mild sleeping medication for you. An hour or two before the operation, the nurse will ask that you remove your nail polish, hair pins, make-up (if you are a woman) and dentures. Then you will be given a clean, loose-fitting shirt, a hospital gown and a surgical orderly will come to the ward and take you to the pre-operative room where you will wait to be fully prepared. Once you are in the pre-operative room, the nurse will give you a hypodermic needle which will make your mouth dry and you will become drowsy and relaxed. After the region around the hernia is shaved to prevent contamination from hair, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse and then give you an injection of sodium pentothol by vein. Within a few seconds you will be asleep. Now, let's stop and summarize the steps immediately preceding the operation.

First of all, you will not be allowed anything to eat or drink beginning at midnight before the operation so that you will not become nauseaous or vomit during the operation. Then you will be asked to remove your dentures, nail polish, make-up, hair pins and other objects. Following this, you will be given a clean hospital gown and a surgical orderly will take you to the pre-operative room. Here, a nurse will give you a hypodermic needle which will make your mouth dry and you will become drowsy and relaxed. As soon as the operating room is ready and after the region around the hernia is shaved, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse. Then, he will give you an injection of sodium pentothol by vein and within a few seconds you will be asleep.

This is the end of our third session. Tomorrow, I am going to describe to you the events during and after the operation. That is, I will be telling you about the typical hospital routine which you will experience after your operation and I will describe briefly the operation itself. It has been found that this type of information has been most helpful to patients undergoing hernia operations. Thank you again and see you tomorrow.

Session 4

Today, I would like to speak to you about two things: first, I would like to very briefly describe the operation itself to you. I would like to give you an idea of what will happen in the operating room during your operation. Secondly, I would like to describe to you your experiences after the operation. Before I do that though, let's go over some of the infcrmation I gave you yesterday.

First, I indicated that on the day before the operation, you or a nurse will have to wash the area which will be operated thoroughly with surgical soap in order to prevent infection. Then, your surgeon and the anaesthetist will decide on the best type of anaesthesia for you. In addition, I mentioned that the anaesthetist will discuss the details of the operation with you. You will not be given anything to eat or drink beginning at midnight before the operation. This is done in order to prevent any nausea or vomiting at the time of the operation. Also, since some people are apprehensive and sleep poorly in a strange place, I mentioned that your physician will probably order a mild sleeping medication for you. The next day, an hour or two before the operation, the nurse will ask you to remove your dentures, make-up and hair pins for the women. Then you will be given a clean, loose-fitting hospital gown and a surgical orderly will come to the ward and take you to the pre-operative room where you will wait to be fully prepared. Once you are in the pre-operative room, the nurse will give you a hypodermic which will make your mouth dry and you will become drowsy and relaxed. After the region around the hernia is shaved to prevent contamination from hair, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse. He will then give you an injection of sodium pentothol by vein and within a few seconds you will be asleep.

The operation to correct the hernia is performed through an incision in the groin area. To accomplish the repair, two defects must be corrected. First of all, the contents of the hernia must be pushed back into the belly cavity and the hernial sac removed and sewn up. Secondly, the opening in the muscles of the belly wall must be sewn up and the muscle weakness reinforced. This can be done with the muscle

and tissue next to the hernia although, in some instances the tissues are too badly weakened and must be reinforced with a fine mesh-like material.

After the operation, you will be brought to the recovery room adjacent to the operating room. This is where you will awaken. Here, a specially trained nurse will care for you until you have recovered from the anaesthesia. Then you will be returned to your own room. As the anaesthesia wears off you will note some pain in the region of the incision just like with any other cut. Your doctor will have ordered medication to relieve the pain though. At first the pain will seem worse with movement, deep breathing and coughing. Nevertheless, it is important for you to go on moving, breathing deeply and coughing in order to prevent complications. However, you can achieve some relief from discomfort by pressing on the incision area while coughing.

To summarize what I've just said, then, during the operation the doctor will empty the sac of its contents and then remove the sac entirely. He will then simply close the opening into the abdomen by using strong sutures. After the operation you will be brought into the recovery room where you will remain until you have recovered from the effects of the anaesthetic. Here, a specially trained nurse will care for you. Then, you will be returned to your room. As the anaesthetic wears off you will note some pain in the area of the incision. Certain activities such as movement, deep breathing and coughing will make the pain seem worse, although it is very important not to stop performing these functions. One way in which relief from pain can be achieved is if you press on the incision area while coughing.

In the last few years we have found that patients heal faster and have fewer complications if they get out of bed and walk soon after surgery. An additional advantage is that distention and gas pains can be decreased or avoided completely by this early activity, thus giving you freedom from discomfort later. Consequently, as soon as the doctor feels you are able, usually the day after surgery, he will ask the nurse to help you get up for a few minutes. You should not attempt to get out of bed alone the first time, as you may become dizzy. Later, it is best to sit on the edge of the bed for a few minutes before trying to walk. You will not be permitted to eat for 24-48 hours after surgery. However, your nutrition will be maintained by fluids and vitamins given through your veins. By the second day you will probably be able to drink some liquid and by the third or fourth day you should be eating a soft diet.

Because of your diminished food and fluid intake, you may not have a bowel movement for several days. Your physician will routinely listen to your abdomen for bowel sounds and will order a mild laxative or enema if you have not had a bowel movement by the fourth or fifth day. Be sure to tell the nurses when you have had a bowel movement so they can report it to the doctor.

Unfortunately, any surgical procedure entails a certain amount of discomfort even though it is only temporary. You can decrease your discomfort and hasten your recovery if you remember the recommendations I have made. Hold your incision site when you cough, take several deep breaths each hour, move around in bed and begin walking as soon as you can. By the third day, you will begin to feel much better and find that you are able to move, cough and walk with much less discomfort. Your stitches will be removed from the incision within five to seven days after the

operation and, barring any complications, you will then be ready for discharge from the hospital.

At home, you will be able to perform any ordinary activity except for those involving straining. For the next four to six weeks you should avoid heavy lifting, sexual activity and driving an automobile. After this period of time, depending on the nature of your job, you may gradually take on more activity and return to work.

So, to summarize the period immediately following the operation, you will be brought into the recovery room where specially trained nurses will care for you until you have recovered from the effects of the anaesthetic. Then you will be returned to your own room. As the anaesthetic wears off, you will notice some pain around the area of the incision. Certain activities too, will cause the pain to seem worse, such as movement, deep breathing and coughing. However, you can relieve some of the pain by pressing on the incision area while coughing. You will be allowed to get out of bed to walk within the first 24 hours after the operation, and in fact, you should, and within two or three days after the operation, you will be able to get about with minimal discomfort. By then, you will also be allowed to eat a normal diet. The stitches will be removed within five to seven days after the operation and then you will be ready for discharge from the hospital. At home, you should avoid engaging in activities which require you to strain yourself, as for example, heavy lifting, sexual activity or even driving an automobile. You can, however, perform any ordinary activity and after a period of four to six weeks, you may gradually take on more and more activity. This is the end of our fourth session. Tomorrow, during our last session

together, I would like to help you make certain that you have understood all that I have told you. This, of course, is a very important aspect of the treatment and I'm sure it will be very helpful to you. Thank you again and see you tomorrow for the last time.

Session 5

This is our fifth and last session. Today, I would like to briefly summarize all the information I have given you from the start.

Unlike most people who are about to have a hernia operation, you already know that a hernia means a rupture. You know too, that hernias may occur in childhood and are five times more common in men than in women. They are usually the result of some basic tissue defect present at birth and, in this case, the origin of the hernia is considered to be congenital. It is possible, however, to simply acquire a hernia as a result of strenuous labour or vigorous physical activity. Whatever its origin though, the rupture is usually quite small at first, although it gradually increases in size. The swelling or the bulge itself consists of three parts: the covering, the sac and the contents of the hernia. Generally speaking, hernias usually occur in the groin area.

There are three types of hernias: first, the reducible hernia, second, the irreducible hernia or incarcereted hernia and finally, the strangulated hernia. A reducible hernia, as you know, can be corrected by the palliative treatment. That is, the contents of the hernial sac can be pushed back into the abdomen and an elastic bandage or truss applied to prevent the contents from escaping. This technique can only work however, if the hernia is never allowed to come down again. If the reducible hernia

cannot be held up by means of a truss, an operation, of course, becomes necessary. An irreducible or incarcerated hernia, on the other hand, must be corrected by surgery. Such a hernia, because of its large size, is a constant source of danger and is susceptible to injury. In a strangulated hernia, the circulation of blood through the hernial contents is interfered with and it must be corrected by immediate surgery. It is obvious then, that in most of the cases, the only way in which the hernia can be corrected is by surgery. In fact, if they are not operated upon, hernias only tend to get bigger and bigger.

Patients are usually admitted to the hospital on the day before surgery. Several preparations must be made before surgery. First, your surgeon and the anaesthetist will decide on the best type of anaesthesia for you. This will be after the anaesthetist discusses the details of the operation with you. Secondly, you or a nurse will wash the area of the hernia thoroughly several times with a surgical soap. This is done in order to prevent infection. Beginning at midnight before the operation, you will not be allowed to eat or drink anything. This is done in order to prevent nausea or vomiting at the time of the operation. Also, since some people are apprehensive and sleep poorly in a strange place, your physician will probably order a mild sleeping medication for you. The next day, an hour or two before the operation, the nurse will ask you to remove objects such as your dentures, rings or other jewellry, nail polish, make-up or hair pins. Then, you will be given a hospital gown and a surgical orderly will take you to the pre-operative room. Once you are in the pre-operative room, the nurse will give you a hypodermic needle which will make your mouth dry and you will become drowsy and relaxed. Then after the region around the hernia is shaved to prevent the contamination from

hair, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse and then give you an injection of sodium pentothol by vein and within a few seconds you will be sound asleep.

During the operation, the doctor will empty the sac of its contents and then remove the sac entirely. He will then simply close the opening into the abdomen by using strong sutures. After the operation, you will be brought into the recovery room which is adjacent to the operating room. This is where you will awaken. Here, specially trained nurses will care for you until you have recovered from the anaesthesia. Then you will be returned to your own room. As the anaesthesia wears off, you will note some pain in the region of the incision just like with any other cut. Your doctor will have ordered medication to relieve the pain though. The pain will seem worse with movement, deep breathing and coughing. Nevertheless, it is important for you to go on moving, breathing deeply and coughing in order to prevent complications. You can achieve some relief from discomfort by pressing on the incision area while coughing. In the last few years we have found that patients heal faster and have fewer complications if they get out of bed and walk soon after surgery. An additional advantage is that dystention and gas pains can be decreased or avoided completely by this early activity, thus giving you freedom from discomfort later. Consequently, as soon as the doctor feels you are able, usually the day after surgery, he will ask the nurse to help you get up for a few minutes. You should not attempt to get out of bed alone for the first time since you may become dizzy. Later it is best to sit on the edge of the bed for a few minutes before attempting to walk. You will not be permitted to eat from 24-48 hours after surgery. However,

your nutrition will be maintained by food and vitamins given through your veins. On the second day, you will probably be able to drink some liquids and by the third or fourth day you should be eating a soft diet.

Unfortunately, any surgical procedure entails a certain amount of discomfort even though it is only temporary. However, you can decrease your discomfort and hasten your recovery if you will remember the recommendations I have made: hold your incision tight when you cough, take several deep breaths each hour, move around in bed and begin walking as soon as you can. The stitches will be removed from the incision within five to seven days after the operation and barring any complications, you will then be ready to be discharged from the hospital. At home, you will be able to perform any ordinary activity except for those involving straining. For the next four to six weeks, you should avoid heavy lifting, sexual activity and driving an automobile. After this period of time, depending on the nature of your job, you gradually may take on more activity and return to work.

This is the end of our last session. I hope that what I have told you has helped to answer some of the questions you had in your mind concerning the operation. I'm sure that these sessions will be beneficial to you during the next couple of weeks. Thank you again.

your nutrition will be maintained by food and vitamins given through your veins. On the second day, you will probably be able to drink some liquids and by the third or fourth day you should be eating a soft diet.

Unfortunately, any surgical procedure entails a certain amount of discomfort even though it is only temporary. However, you can decrease your discomfort and hasten your recovery if you will remember the recommendations I have made: hold your incision tight when you cough, take several deep breaths each hour, move around in bed and begin walking as soon as you can. The stitches will be removed from the incision within five to seven days after the operation and barring any complications, you will then be ready to be discharged from the hospital. At home, you will be able to perform any ordinary activity except for those involving straining. For the next four to six weeks, you should avoid heavy lifting, sexual activity and driving an automobile. After this period of time, depending on the nature of your job, you gradually may take on more activity and return to work.

This is the end of our last session. I hope that what I have told you has helped to answer some of the questions you had in your mind concerning the operation. I'm sure that these sessions will be beneficial to you during the next couple of weeks. Thank you again.

Gall Bladder Information

Session 1

Please seat yourself comfortably. First, let me take this opportunity to thank you for participating in this experiment. I hope that you will find our meetings enjoyable and I am certain that what you will learn during our sessions will be of great help to you, especially during the next few weeks, during your operation and recovery period. Today, I'd like to do two things. First I'd like to explain to you what we will be doing together during the next few days. Then I'd like to begin by clarifying your problem to you in some detail, the reasons for your condition and your operation. Before we begin though, let me assure you that both your doctor and I are very much interested in your comfort and well-being during your upcoming hospitalization and it's for this reason that we feel that these sessions with me will be of enormous benefit to you. We at the Jewish General Hospital are very much interested in your comfort and well-being during your stay with us.

Now, let me tell you a little bit about the rest of this session and our next four together. In about five days you are going to have your operation. Most people who are about to have an operation, even a minor one, get a little nervous about it. Of course there are some people who are not nervous about operations at all. Nevertheless there are many who even when they think about an operation feel a little nervous. In most cases the reason for this is that they don't have enough information about their condition and the operation itself. In other words, they are frightened of the unknown. We feel that if a patient is given more information about his illness and the operation, he will tend to feel

less nervous about it. This technique of information-giving has been used before with many different types of people, and we've always had good results. Because of this both your doctor and I feel that these few sessions with me will be very beneficial to you and of course very safe. Let me say again that I hope you will enjoy these few sessions with me and I am quite certain that they will be of enormous value to you.

Most people know little about their gall bladder. Even patients who have experienced problems with it and are about to have it removed have little knowledge about their condition or what to expect afterwards. During today's session then, I'm going to give you a better idea of what a gall bladder is. We're going to begin with a description of the gall bladder. Then I will tell you about the incidence of the gall bladder condition in general and how the condition probably arose in you.

The gall bladder is a thin, pear-shaped, hollow organ which is located on the right side of the body underneath the liver. Its function is to store and concentrate a substance called bile from the liver and to empty this bile into the intestines during digestion. Bile is important in the digestion and absorption of fats and fatty acids. It is transported from the gall bladder to the intestine by a small tube called a bile duct. When fat is eaten, the gall bladder contracts, forcing the bile through the bile duct into the intestine.

The gall bladder is subject to many diseases, such as inflammation and formation of gall stones within it. If the gall bladder is diseased, contraction of the gall bladder will produce pain. This pain is generally interpreted as indigestion. Consequently, after eating a meal of fried or fatty food, the person with a diseased gall bladder may experience a variety of uncomfortable symptoms, such as

nausea, vomiting, belching or a sensation of heaviness in the upper abdomen.

To summarize what I have just said then, the gall bladder is a thin, pear-shaped, hollow organ, located on the right side of the body beneath the liver. It acts as a storage place for bile, the digestive fluid secreted by the liver. The gall bladder not only stores the bile but also empties it into the intestine during digestion. This bile is transported from the gall bladder to the intestine by a small tube called the bile duct. I mentioned that bile is important for digestion and absorption of fats and fatty acids. When fat is eaten the gall bladder contracts, forcing the bile through the bile duct into the intestine. If the gall bladder is diseased in some way, pain will occur during this contraction. This pain is generally interpreted as indigestion. The person with a diseased gall bladder may experience various uncomfortable symptoms after eating a meal of fried foods. He may be nauseous, he may vomit or belch, or he may experience a sensation of heaviness in the upper abdomen.

The gall bladder is not a very necessary organ and its removal by operation does not deprive the body of any vital functions. Neither does the removal of the gall bladder decrease the amount of bile entering the intestine. You may be interested to know that there are approximately 330,000 gall bladder surgeries performed each year.

Tomorrow, I'd like to speak to your about some of the specific reasons for gall bladder surgery and some of the dangers involved if one does not go through surgery if he has a gall bladder condition.

This is the end of our first session, but before we adjourn today, let me very briefly summarize again what I have said. I

mentioned that the gall bladder, which is located on the right side of the body beneath the liver, stores and concentrates the bile from the liver and empties this bile through the bile duct into the intestine during digestion. I indicated too that if the gall bladder is diseased the contraction of the gall bladder which forces the bile through the bile duct will produce pain; this will feel like indigestion and will sometimes be accompanied by nausea, vomiting, belching and a heaviness in the upper abdomen. These symptoms will occur especially after having eaten fried or fatty foods. And finally I indicated that the gall bladder is not a very necessary organ and its removal by surgery does not deprive the body of any vital function; neither does its removal interfere in any way with the passage of bile into the intestine. Gall bladder surgery is a very routine procedure which is performed on about 330,000 people a year.

Session 2

Though a gall bladder operation is a common procedure, many patients who are about to have the surgery know very little about it. Today I'd like to speak to you about some of the specific reasons for gall bladder surgery and some of the dangers if one does not go through surgery. But first let me very briefly summarize what I spoke to you about yesterday.

The gall bladder, I mentioned, is a thin, pear-shaped, hollow organ which is located on the right side of the body underneath the liver. Its function is to store and concentrate bile from the liver, and to enter this bile into the intestine during digestion. Bile is

important in the digestion and absorption of fats and fatty acids. It is carried from the gall bladder to the intestine by a small tube called a bile duct. When fat is eaten the gall bladder contracts, forcing the bile through the bile duct into the intestine. The gall bladder is subject to many diseases, such as inflammation and formation of gall stones within it. If the gall bladder is diseased, contraction of the gall bladder will produce pain. This pain is generally interpreted as indigestion. Consequently after eating a meal of fried or fatty foods, the person with a diseased gall bladder may experience various uncomfortable symptoms, such as nausea, vomiting, belching or a sensation of heaviness in the upper abdomen.

The gall bladder, I said, is not a very necessary organ, and its removal by operation does not deprive the body of any vital function. Neither does the removal of the gall bladder decrease the amount of bile entering the intestine. Gall bladder surgery is a very routine procedure which is performed on about 330,00 people a year. Most of these gall bladders contain stones. In fact, an estimated 15,000,000 Americans have gall stones. The condition is three times more common in women than in men. About nine out of ten gall stones are composed mostly of cholesterol. In a person who does not have gall stones, the cholesterol is dissolved by a mixture of bile acid and a substance called lecithin. The majority of patients with cholesterol gall stones, though, seem to have a lower amount of bile acid and lecithin as compared to the amount of cholesterol in their bile. As a result the excess cholesterol forms into stones. These stones irritate the lining of the gall bladder, making the gall bladder more susceptible to infection. In addition, the stones interfere with the flow of bile. Occasionally some of the stones pass down from the gall bladder into one of the ducts which transports the bile and may

block it. This is a serious complication which causes jaundice and liver damage unless the stone is quickly removed. Usually emergency surgery is required. Most probably your gall bladder condition is not like this.

The symptoms produced by the stones are severe pain in the upper right part of the abdomen under the ribs and sometimes it radiates to the right shoulder area. At times the pain may be cramps, suggesting the passage of a small stone. Unfortunately there is no way to dissolve gall stones once they are formed. The only method of treatment is to remove the entire gall bladder and contained stones.

This is the end of our second session, but before we terminate I'm sure you would like me to briefly sum up what I've told you about today. I indicated that the gall bladder, which is located on the right side of the body beneath the liver stores and concentrates bile from the liver and empties this bile through the bile duct into the intestine during digestion. If the gall bladder is diseased, I mentioned that the contraction of the gall bladder forcing the bile through the bile duct would produce pain which would feel like indigestion. This would also produce symptoms like nausea, vomiting, belching and a heaviness in the upper abdomen. These symptoms would occur especially after having eaten a meal of fried or fatty foods. Then we said that because the gall bladder is not a very necessary organ in our bodies, its removal by surgery does not deprive the body of any vital function. In fact, about 330,000 people a year have gall bladder operations.

Most of these gall bladders contain stones. In fact, about 15,000,000 Americans have gall stones, the condition being three times more common in women than in men. Most gall stones, I mentioned, are composed of cholesterol. These stones irritate the lining of the gall

bladder, making it more susceptible to infection. Also, these stones interfere with the flow of bile. The main symptom produced by stones is severe pain in the upper part of the abdomen under the ribs. This pain sometimes radiates to the right shoulder area. Occasionally some stones may pass down from the gall bladder into one of the ducts which transport the bile and may block it. This is a serious complication, I indicated, which causes jaundice and liver damage unless the stone is quickly removed. Usually emergency surgery is required in this case. There is no way to dissolve gall stones once they are formed and so the only method of treatment is to remove the entire gall bladder and contained stones.

Patients are often not familiar with hospital procedures and do not know what to expect before and after surgery. As a result they may become upset or frightened by routine procedures. I cannot tell you exactly what will happen, since your surgeon will evaluate your medical history and your current health and then prescribe what he believes is best for you, rather than following a set routine. However, what I can do is give you a general idea of what happens to the average man or woman who has a gall bladder operation and what they can do to improve their recovery. Tomorrow , then, I will tell you about the treatment and procedures before the operation. That is, I will be telling you about the typical hospital routine which you will encounter before your operation. This information will help you to adjust while you will be in the hospital. Thank you very much and see you tomorrow.

Session 3

Patients are often not familair with hospital procedures and do not know exactly what to expect before surgery. As a result they may become upset or frightened by routine procedures. I can't tell you exactly what will happen since your surgeon will evaluate your own medical history and your current health and then prescribe what he believes is best for you, rather than following a set routine. However, what I can do, is give you a general idea of what happens to the average surgery patient who has a gall bladder operation and what they can do to improve their recovery. Before I do that though, I'm sure you would like me very briefly to go over what I talked about in our first two sessions.

The gall bladder, I mentioned, stores and concentrates bile from the liver and empties this bile through the bile duct into the intestine during digestion. If the gall bladder is diseased, its contraction will produce pain which feels like indigestion. It will also produce symptoms like nausea, vomiting, belching and a heaviness in the upper abdomen. These symptoms will occur especially after having eaten a meal of fried or fatty foods. The gall bladder, I mentioned, is not a very necessary organ in our bodies, and about 330,000 people a year have their gall bladders removed surgically. Most of these gall bladders contain stones. The condition of gall stones is extremely prevalent (about 15,000,000 Americans have it), the condition being three times more common in women than in men. The stones irritate the lining of the gall bladder and interfere with the flow of bile. The main symptom produced by gall stones is severe pain in the upper part of the abdomen under the ribs.

This pain is sometimes is felt in the right shoulder area. Sometimes one or more stones may pass from the gall bladder into one of the ducts. This is a serious complication and usually the stone must be removed immediately. Even if the stones are only in the gall bladder, once they are formed there is no way to dissolve them. The only method of treatment is to remove the entire gall bladder and contained stones surgically.

During your operation your surgeon will check your bile ducts. If there's any indication that you have a stone in one of them, he will remove the stone at the same as he removes your gall bladder.

At this point, I'm sure you would be interested in knowing the preparations made before the operation. Patients are usually admitted to the hospital on the day before surgery. Before the operation, the skin in the area of the gall bladder must be made as clean as possible. For this reason, the patient himself or the nurse must wash the area thoroughly several times with a special surgical soap on the day before the operation. This is done of course in order to prevent infection. Secondly, the surgeon who is to perform the operation and the anaesthetist, the physician who administers the anaesthetic, must decide which form of anaesthesia is best suited to the individual patient. And thirdly, the anaesthetist will discuss the details of the operation on the day before the operation. They will want to know the patient's previous experiences with anaesthetics, if any, and his preferences.

Now, before I go on to describe the steps immediately preceding the operation, let me stop for a very brief moment and summarize what I've just been saying. I mentioned that patients are admitted to the hospital on the day before surgery. On the day before surgery, too, you or a nurse will wash the area which will be operated with a surgical

soap in order to prevent infection. Then your surgeon and anaesthetist will decide on the best type of anaesthesia for you. And finally, the anaesthetist will discuss the details of the operation with you.

To go on, now, you will not be allowed to eat or drink anything beginning at midnight before the operation in order to prevent nausea or vomiting at the time of the operation. Also because some people are apprehensive and sleep poorly in a strange place, your physician will probably order a mild sleeping medication for you. The next day, an hour or two before the operation, the nurse will ask you to remove your nail polish, hair pins, make-up, if you are a woman, and dentures. Then you will be given a clean, loose-fitting shirt, a hospital gown, and a surgical orderly will come to the ward and take you to the pre-operative room where you will wait to be fully prepared.

Once you are in the pre-operative room, the nurse will give you a hypodermic which will make your mouth dry and you will become drowsy and relaxed. After the region around the gall bladder is shaved to prevent contamination from hair, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse and then, give you an injection of sodium pentothol by vein. Within a few seconds you will be asleep.

Now, let's stop and summarize the steps immediately preceding the operation. First of all, you will not be given anything to eat or drink at midnight before the operation so that you will not become nauseous or vomit during the operation. Then you will be asked to remove your dentures, nail polish, make-up, hair pins and other objects. Following this, you will be given a clean hospital gown and a surgical orderly will take you to the pre-operative room. Here a nurse will give

you a hypodermic needle which will make your mouth dry and you will become drowsy and relaxed. As soon as the operating room is ready and after the region around your gall bladder is shaved, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse. Then he'll give you an injection of sodium pentothol by vein and within a few seconds you will be asleep.

This is the end of our third session. Tomorrow I'm going to describe to you the events during and after the operation. That is, I will be telling you about the typical hospital routines which you will experience after the operation. This type of information, it has been found, has been most helpful to patients undergoing gall bladder operations. Thank you again, and see you tomorrow.

Session 4

Today I'd like to describe your experiences after the operation. Before I do that though, let's go over some of the information I gave you yesterday. First I indicated that on the day before the operation you or a nurse would have to wash the area which will be operated thoroughly with a surgical soap in order to prevent infection. Then your surgeon and the anaesthetist will decide on the best type of anaesthesia for you. In addition, I mentioned that the anaesthetist will discuss the details of the operation with you. You will not be given anything to eat or drink beginning at midnight before the operation. This is done in order to prevent any nausea or vomiting at the time of the operation. Also, since some people are apprehensive and sleep poorly in a strange place, I mentioned that your physician will probably order a mild sleeping medication for you. The next day, an hour or two before the operation, the nurse will ask you to remove your dentures

and make-up and hair pins for the women. Then you will be given a clean, loose-fitting hospital gown and a surgical orderly will come to the ward and take you to the pre-operative room where you will wait to be fully prepared. Once you are in the pre-operative room, the nurse will give you a hypodermic which will make your mouth dry and you will become drowsy and relaxed. After the region around the gall bladder is shaved to prevent contamination from hair, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse. He will then give you an injection of sodium pentothol by vein and within a few seconds you will be asleep.

After the operation you will be brought into the recovery room adjacent to the operating room. This is where you will awaken. Here, a specially trained nurse will care for you until you have recovered from the anaesthesia. Then you will be returned to your own room. As the anaesthesia wears off, you will note some pain in the region of the incision like with any other cut. Your doctor will have ordered medication to relieve the pain though. At first the pain will seem worse with movement, deep breathing and coughing. Nevertheless, it is important for you to go on moving, breathing deeply and coughing in order to prevent complications. However, you can achieve some relief from discomfort by pressing on the incision area while coughing.

To summarize, then, after the operation, you will be brought into the recovery room where you will remain until you have recovered from the effects of the anaesthetic. Here specially trained nurses will care for you. Then you will be returned to your room. As the anaesthetic wears off, you will note some pain in the area of the incision. Certain activities, such as movement, deep breathing and

and coughing will make the pain seem worse, although it is very important not to stop performing these functions. Some relief from pain can be achieved if you press on the incision area while coughing.

In the last few years we have found that patients heal faster and have fewer complications if they get out of bed and walk soon after surgery. An additional advantage is that distension and gas pains can be decreased or avoided completely by this early activity, thus giving you freedom from discomfort later. Consequently, as soon as the doctor feels you are able, usually the day after surgery, he will ask the nurses to help you get up for a few minutes. You should not attempt to get out of bed alone the first time as you may become dizzy. Later, it is best to sit on the edge of the bed for a few minutes before trying to walk.

You will not be permitted to eat for twenty-four to forty-eight hours after surgery. However, your nutrition will be maintained by fluids and vitamins given through your veins. By the second day you will probably be able to drink some liquids and by the third or fourth day you should be eating a soft diet. Because of your diminished food and fluid intake, you may not have a bowel movement for several days. Your physician will routinely listen to your abdomen for bowel sounds and will order a mild laxative or enema if you have not had a bowel movement by the fourth or fifth day. Be sure to tell the nurse when you have had a bowel movement so she can report it to the doctor.

Unfortunately, any surgical procedure entails a certain amount of discomfort, even though it is only temporary. You can decrease your discomfort and hasten your recovery if you remember the recommendations I have made. Hold your incision tight while you cough, take several deep breaths each hour, move around in bed and begin walking as soon as

you can. By the third day you will begin to feel much better and find you are able to move, cough and walk with much less discomfort. Your stitches will be removed from your incision within five to seven days after the operation and barring complications, you will then be ready for discharge from the hospital.

If the doctor has to remove a stone from your bile duct, your stay will be slightly longer. You will gradually be able to perform any ordinary activity at home, though you will probably not want to resume full activity or return to work for about five to six weeks after the operation. Since your gall bladder had been diseased and had not been functioning normally for some time, you will not notice its removal. In the future the bile will enter the intestine directly after a meal has been eaten. Usually after a six to eight week period of re-adjustment you will be able to eat a normal diet without any discomfort or pain.

This is the end of our fourth session. Tomorrow, during our last session together, I would like to help you make certain that you have understood all that I have told you. This, of course, is a very important aspect of the whole treatment, and I'm sure will be very helpful to you. Thank you again, and see you tomorrow for the last time.

Session 5

This is our ~~fifth~~ and last session. Today I'd like to briefly summarize all the information I've given you from the start. Unlike most people who are about to have a gall bladder operation, you already know that the gall bladder is a thin, pear-shaped hollow organ which is located on the right side of the body and underneath the liver. Its function, I mentioned, is to store and concentrate bile from the liver and to feed

this bile into the intestine during digestion. The gall bladder, I mentioned, is subject to many diseases, such as inflammation and formation of gall stones. If the gall bladder is diseased, contraction of the gall bladder will produce pain which resembles indigestion. Consequently, after eating a meal of fried or fatty foods, the person with a diseased gall bladder may experience feelings of nausea, vomiting, belching or a sensation of heaviness in the upper abdomen. The gall bladder is not a necessary organ and its removal by operation does not deprive the body of any vital function. Neither does the removal of the gall bladder decrease the amount of bile entering the intestine. In fact, gall bladder surgery is a very common occurrence, being performed on about 330,000 people a year. Most of these gall bladders contain stones. In fact, an estimated 15,000,000 Americans have gall stones. The condition is three times more common in women than in men. These stones irritate the lining of the gall bladder, making the gall bladder more susceptible to infection. In addition, the stones interfere with the flow of bile. Occasionally some of the stones may pass down from the gall bladder into one of the ducts which transports the bile and may block it. This is a serious complication which causes jaundice and and liver damage unless the stone is quickly removed. Usually emergency surgery is required. In all probability your gall bladder is not like this. Unfortunately there is no way to dissolve gall stones once they are formed. The only method of treatment is to remove the entire gall bladder and contained stones. The main symptom produced by the stones is severe pain in the upper right part of the abdomen under the ribs and sometimes it radiates to the right shoulder. At times the pain may be crampy, suggesting the passage of a small stone. Because of your symptoms, your doctor has advised surgery.

It is the only way to remove your discomfort and to protect you against further infection or the possibility of a stone lodging in one of the bile ducts. During your operation your surgeon will check your bile ducts. If there is any indication that you have a stone in one of them, he will remove the stone at the same time as he removes your gall bladder.

Patients are usually admitted to the hospital on the day before surgery. Several preparations must be made before surgery. First, your surgeon and the anaesthetist will decide on the best type of anaesthesia for you. This will be after the anaesthetist discusses the details of the operation with you. Secondly, you or a nurse will wash the area of the gall bladder thoroughly several times with surgical soap. This is done to prevent infection. Beginning at midnight before the operation you will not be allowed to eat or drink anything. This is done in order to prevent nausea or vomiting at the time of the operation. Also, since some people are apprehensive and sleep poorly in a strange place, your physician will probably order a mild sleeping medication for you. The next day, an hour or two before the operation, the nurse will ask you to remove objects such as your dentures, rings or other jewelry, nail polish, make-up or hair pins. Then, you will be given a hospital gown and a surgical orderly will take you to the pre-operative room. Once you are in the pre-operative room the nurse will give you a hypodermic needle which will make your mouth dry and you will become drowsy and relaxed. Then after the region around the gall bladder is shaved to prevent contamination from hair, you will be wheeled into the operating room where the anaesthetist will take your blood pressure and pulse and then give you an injection of sodium pentothol by vein. Within a few seconds you will be sound asleep.

After the operation you will be brought to the recovery room which is next to the operating room. This is where you will awaken. Here, specially trained nurses will care for you until you have recovered from the anaesthesia. Then you will be returned to your own room. As the anaesthesia wears off you will note some pain in the region of the incision, just as with any other cut. Your doctor will have ordered medication to relieve the pain though. The pain will seem worse with movement, deep breathing and coughing. Nevertheless it is important for you to go on moving, breathing deeply and coughing in order to prevent complications. You can achieve some relief from discomfort however, by pressing on the incision area while coughing. In the last few years we have found that patients heal faster and have fewer complications if they get out of bed and walk soon after surgery. The additional advantage is that distension and gas pains can be decreased or avoided completely by this early activity, thus giving you freedom from discomfort later. Consequently as soon as your doctor feels you are able, usually the day after surgery, he will ask the nurses to help you get up for a few minutes. You should not attempt to get out of bed alone the first time since you may become dizzy. Later it is best to sit on the edge of the bed for a few minutes before attempting to walk. You will not be permitted to eat anything for twenty-four to forty-eight hours after surgery. However, your nutrition will be maintained by fluids and vitamins given through your veins. By the second day you will p obably be able to drink some liquids, and by the third or fourth day, you should be eating a soft diet.

Unfortunately any surgical procedure entails a certain amount of discomfort, even though it is only temporary. However, you can decrease your discomfort and hasten your recovery if you remember the

recommendations I have made. Hold your incision tight when you cough, take several deep breaths each hour, move around in bed and begin walking as soon as you can. The stitches will be removed from the incision within five to seven days after the operation and, barring any complications, you will then be ready for discharge from the hospital. At home you will gradually be able to perform any ordinary activity, but will probably not want to resume full activity or return to work for about five to six weeks after the operation. Since your gall bladder has been diseased and has not been functioning normally for some time, you will not notice its removal. In the future the bile will simply enter the intestine directly after a meal has been eaten. Usually after a six to eight week period of readjustment, you will be able to eat a normal diet without any discomfort or pain.

This is the end of our last session. I hope that what I have told you has helped to answer some of the questions you had in your mind concerning the operation. I'm sure these sessions will be beneficial to you during the next couple of weeks and thank you again.

Appendix H

Standardized Desensitization Hierarchy

and

Text of Desensitization Tape for Patients Undergoing both Hernia and Gall Bladder Surgery

Standardized Desensitization Hierarchy for Surgery Patients

1. Receiving news from the doctor of the need for the operation.
2. Packing in preparation for admission to hospital and driving to the hospital.
3. Being admitted into the hospital.
4. In hospital on the day before surgery: getting ready for surgery.
5. Day before the operation: discussing the operation with anesthetist.
6. One hour before surgery: receiving an injection.
7. Sensations following the injection.
8. Just before surgery: changing into operating gown.
9. Being wheeled to operating room area.
10. Waiting in the operating room area to be prepared.
11. Being wheeled into a room where you are completely prepared for the operation.
12. Being wheeled into the operating room.
13. The anesthetist administers the anesthetic: you smell the ether and are told to start counting.
14. Fears of never regaining consciousness.

15. Fears of worse illness being discovered.

16. Waking up in recovery room: feelings of grogginess and nausea.

17. Being returned to the ward where the anesthetic is wearing off and pain is being felt in the incision area.

18. Being treated in a cold, impersonal manner by hospital personnel.

19. Feeling severe pain on coughing, breathing deeply or moving.

20. Fears of complications; fears of dying.

Desensitization Text

Session 1

Please seat yourself comfortably. First, let me take this opportunity to thank you for participating in this study. I hope that you will find our meetings enjoyable and I am certain that what you will learn during our sessions will be of great help to you, especially during the next few weeks, during the operation and recovery period. Today I would like to do two things. First, I would like to explain to you what we will be doing during the next few days. Then, I would like to start teaching you how to relax. Before we begin though, let me assure you that both your doctor and I are very much interested in your comfort and well-being during your up-coming hospitalization, and it is for this reason that we feel that these sessions with me will be of enormous benefit to you. We at the Jewish/General Hospital are very much interested in your comfort and well-being during your stay with us.

Now, let me tell you a little bit about this session and our next four together. In about five days you are going to have your operation. Most people who are about to have an operation, even a minor one, get a little nervous about it. Of course, there are some people who do not feel nervous about operations at all. Nevertheless, there are many who, even when they think about an operation, feel a little nervous. Usually, in most cases, we learn to be nervous about certain things. Probably you learned to be nervous about operations many years ago, even before you had ever had an operation. There are probably many reasons for this and it is quite normal, for most people

do. Of course when you are nervous, even a little, you can't be relaxed at the same time. The technique we will be using is one called desensitization. What it is actually is a relaxation procedure. I will teach you during the next little while today to relax. Of course the real advantage of relaxation, as I mentioned before, is that you can't be nervous and relaxed at the same time. So once you have learned the relaxation technique you can use it yourself to reduce feelings of tenseness and nervousness like those you experience when you think about your operation.

Because your upcoming operation is one of the main reasons why you may be feeling tense lately, and because there are probably some very specific thoughts and ideas about your operation which are making you feel that way, this session and the next four will be devoted to teaching you how to relax while thinking about various aspects of the operation. In other words, I am going to teach you the technique of relaxation expecially while thinking of various aspects of the upcoming operation. You will be asked to imagine repeatedly some specific situations about your operation while you will be very relaxed, more relaxed than ever before. This will be done by having you visualize each situation very briefly and only while you are relaxed. In this way those situations will gradually lose their ability to make you tense and nervous. I am going to start with those situations and thoughts which probably disturb you the least, and gradually, very gradually, will come to those situations and thoughts about the operation that bother you more.

We have used this technique with many different types of

people and have always had very good results. It is for this reason that both your doctor and I feel that these few sessions with me will be very beneficial for you and of course very safe. Let me say again that I hope you will enjoy these sessions with me and I am quite certain that they will be of enormous value to you.

The rest of today's session will be devoted to teaching you how to relax. When you relax what really happens is that all of your muscles relax. None of your muscles feel tense. Most people are over-tensed without even knowing it. Our goal is to do away with these feelings. You will enjoy the feeling of calmness and peace that spreads over you as tense nerves gradually become relaxed. The important thing right now is for you to get as comfortable as you can. Make sure your back and neck are well supported. Your legs should be extended. Place your arms comfortably on the sides of your chair or in your lap, wherever they feel most comfortable. Rest your head against the back of the chair. No part of your body should need the use of muscles for support. It might also be a good idea if you closed your eyes so that you could feel completely relaxed.

Now, I am going to ask you to tighten certain muscles and I want you to be aware of the sensations and feelings that come from these muscles when they are tight or tense. Keep in mind that I want you to tense your muscles so that you can gain better relaxation. In other words, I want you to feel the difference between tense muscles and relaxed ones.

Now, make a fist with your dominant hand. Make a fist and tense the muscles of your dominant hand and forearm. Tense it until it

trembles. Feel the muscles pull across your fingers and the lower part of your forearm. Hold this position until I ask you to relax..... Relax your fist now all at once, don't ease off, let everything go all at once. Pay attention to the muscles of your hand and forearm as they relax. Notice how those muscles feel as relaxation flows through them. Notice the difference between these muscles now and when they were tense just a minute ago.

Again, tense the muscles of the same hand and forearm. Pay attention to the muscles involved,.....Okay, relax. Attend only to those muscles and note how they feel as relaxation takes place, becoming more and more relaxed, more relaxed than ever before. Feel the relaxation and warmth flow through these muscles. Pay attention to the warm and relaxed feeling you have in these muscles so that later you can relax them again.

Now I am going to ask you to tense the muscles in your upper arm, the same arm which you have just worked on. Leave your hand and forearm on the chair and tense only your upper arm, make it as tense as you can. Feel the muscles in your upper arm tighten up. Hold this position until I ask you to relax.....Now relax. Just let the muscles in your upper arm go flabby. Pay attention to these muscles as they relax. Notice how they feel as relaxation flows through them.

Let's try that again. Tense the muscles of your upper arm. Pay attention to the muscles involved and note how tense they are..... All right, relax now. Attend only to the muscles of your upperarm and note how they feel as relaxation takes place, becoming more and more relaxed, more relaxed than ever before. Each time you do this, you'll relax even more. Feel the relaxation and warmth flow gently through

these muscles. Study the feeling so that you can later relax these muscles again.

Now, this time I am going to ask you to make a fist with your non-dominant hand. Make a fist and tense the muscles of the hand and forearm as hard as you can; tense them until they tremble. Feel the muscles pull over your knuckles and the lower part of your forearm. Hold this position until I ask you to relax. Hold it and feel the tension.....Now relax. Just let your hand go. Pay attention to the muscles of this hand and forearm as the relax. Notice how those muscles feel as relaxation flows through them.

When you relax you may also want to picture yourself relaxing in one of your favourite spots. This may be on a warm sandy beach or under a tree in the woods somewhere. Hold the image of yourself lying calmly in your favourite spot. Picturing yourself in a pleasant spot may help you to relax.

Now again, tense the muscles in your non-dominant hand and forearm. Pay attention to the muscles involved.....Okay, relax now. Relax and attend only to those muscles which you have just tensed. Note how they feel now as relaxation takes place. Note how these muscles feel as they relax. Feel the relaxation and warmth flow through these muscles. Now hold the image of yourself lying calmly in your favorite spot.

Now, I am going to ask you to tense the muscles in your upper arm, the same arm which we just worked on. Leave your hand and forearm on the chair and tense only your upper arm. Make it as tense as you can. Feel your muscles in your upper arm tighten up. Hold this position until I ask you to relax.....Now relax. Just let the muscles in your

upper arm go limp and flabby. Pay attention to these muscles as they relax. Notice how they feel as relaxation flows through them.

Once again, tense the muscles in your upper arm; Pay attention to the muscles involved and note how very tense they are.....Okay, relax now. Attend only to the muscles of your upper arm and note how good they feel now, as relaxation takes place. Feel how they are becoming more and more relaxed, more relaxed than ever before, and picture yourself lying comfortably in your favourite place. Of course each time you do this you will feel more and more relaxed. Feel the relaxation and warmth flow through the muscles of your upper arm. Study this good feeling so that you can later relax these muscles in your upper arm again.

This time we are going to work on the muscles of your forehead. I am going to ask you to frown, hard, very hard, tensing the muscles of your forehead. Raise your eyebrows and pull your scalp down to meet your eyebrows until you can feel the tension in your forehead and up across the top of your scalp. Hold this position until I ask you to relax.....Relax now. Relax and just feel your forehead smoothing out. Feel the muscles of your forehead tingle as you relax. Enjoy the good kind of creeping sensation as the muscles in your forehead and scalp relax and feel comfortable. Good. Now, once more raise your eyebrows and feel the muscles work there. Raise your eyebrows as high as you can and pull your scalp down to meet your eyebrows. Feel the tension in your forehead. Pay attention to the muscles involved and note how tense they are.....Okay, relax now. Relax comfortably and just enjoy the good feeling as your forehead relaxes and smoothes out. Now gradually relax deeper and deeper. Each time you do this you

will become more and more relaxed. Feel the relaxation and warmth flow through the muscles of your forehead and scalp.

This time I want you to wrinkle your nose. Close your eyes tightly, raise your upper lip and wrinkle your nose. Feel how tight your muscles are across the top of your cheeks and upper lip. Hold that position until I ask you to stop.....,Relax now. Relax and feel your nose and cheek muscles smoothing out. Relax and feel the warmth spreading through your nose and cheek muscles.

This time I want you to draw the corners of your mouth back. Act as though you are going to brush your teeth and pull the corners of your mouth back, feeling the tension in your jaw muscles and cheeks. Hold your mouth like that until I ask you to stop.....,Relax now. Just let your mouth drop. Relax and enjoy the good kind of sensation in your jaw and cheek muscles. Just let your mouth hang open a little and note how good it feels as relaxation spreads through the face muscles. Okay, once again. Draw back the corners of your mouth as far as they will go. Feel the tension in your jaw muscles and cheeks.....,and relax. Relax deeply and just let your jaw hang loose. Let all the tension go out of it. Note how good it feels as relaxation spreads through your nose, your cheeks and your jaw muscles.

Now this time we are going to work on our chin and throat muscles. I'd like you to stretch your chin up and out. Tighten your chin and throat muscles, so that you can feel the two muscles in front of your throat stand out. Push your chin out as far as you think it will go. Hold that position until I ask you to relax.....,Relax now. Relax and just feel your chin drop. Pay attention to the muscles of your chin and throat as they relax. Feel the warm and comfortable

sensation as the muscles of your chin and throat relax. Take a slow deep breath and feel the relaxation and warmth flow through all the muscles of your face. At the same time picture yourself basking in the warm sun or lying in the shade of a huge tree and enjoying the feeling of calmness and relaxation.

Now, take a deep breath and hold it. At the same time, tighten your chest muscles and the muscles across your back. Feel the muscles pull below your shoulder blades. Hold that position for a moment..... and relax. Relax and feel the relaxation spreading all around your shoulders and upper back. Feel the warm relaxed sensation in your shoulders and chest muscles. Just let your shoulders droop and sag, becoming more and more relaxed, more relaxed than ever before. Breath deeply and slowly and relax. Once again, take a deep deep breath. Now, tighten your chest muscles and the muscles across your back. Be very careful, pull your shoulders back as if you were going to touch the points of your shoulder blades together. Feel the muscles pull below your shoulder blades. Hold that position.....Relax. Relax and just sink into the chair. Feel the relaxation spreading slowly all around your shoulders and upper back, and feel the warm relaxed sensation in your chest muscles. Feel more relaxed than ever before. Just relax.

Now this time I want you to tighten your stomach muscles. Pull it in and make it as hard as you can. Harden your muscles as if someone were going to hit you in the stomach. Feel how tense your stomach muscles are now.....Okay relax. Relax and let the muscles of your stomach go loose. Attend only to the muscles of your stomach and notice how they feel as relaxation takes place, becoming more and more relaxed, looser and heavier, and more relaxed than ever before. Let's

try that again. Tighten your stomach muscles, tighten them as much as you can. Harden your stomach muscles as if someone were going to punch you in the stomach. Feel just how tense these muscles are now.....Okay, relax. Relax and let the muscles of your stomach go loose. Attend only to the muscles of your stomach and note how they feel as the relaxation takes place, becoming more and more relaxed, more relaxed than ever before. Picture yourself in your favourite spot and hold that image while you relax your stomach muscles. Relax them as they've never been relaxed before. Now once again, I want you to tighten your stomach muscles, tighten them and make them as hard as you can, take a deep breath and hold it as you tighten your stomach muscles. Hold that position until I ask you to stop.....And relax. Feel the relaxation and warmth flow through these muscles. Pay close attention to the warm and relaxed feeling that you have in your stomach muscles so that you can recognize that feeling later on. Note well how they feel as relaxation flows through them. Remember this feeling so that later you can achieve this very same feeling in your stomach.

That was very good. Now I want you to tense the muscles of your right upper leg. You actually have three muscles in your upper leg. One on the upper side of the leg just above your knee, and two on the under side. Pay attention to these three muscles. Tighten them and feel how tense they are. Hold this position until I tell you to relax.....Good, relax now. Relax all the muscles in your right upper leg. Feel the relaxation and warmth spreading through them. Note how heavy your right upper leg feels as you relax more and more. Good. Now again, tense the muscles of your right upper leg. Tense them as much as you can and hold that position. Keep holding it until I tell

you to stop.....Relax. Pay attention only to the muscles of the right upper leg and note how they feel as relaxation takes place in them. They are becoming more and more relaxed, much more relaxed than ever before.

Now, this time I want you to tighten the muscles in your right calf. Feel how tense the muscles in your right calf are. Stretch your leg out as far as it will go and tighten the muscles. Hold that position until I ask you to stop.....Relax now. Feel these muscles smoothing out. Relax. Feel completely relaxed. Notice how heavy your right leg feels, and how relaxed your right calf feels.

This time I want you to push down with the toes of your right foot and arch your foot. Feel the pressure as if something were pushing up under the arch.....And relax. Just let your right foot and leg go limp, completely limp and relaxed. Pay attention to the muscles of your right foot and leg, feel how heavy and warm and tingly they are as relaxation spreads through them. Now once more, push down very hard with the toes of your right foot and arch your foot. Push down so that you can feel the muscles in your foot tense up. Feel the pressure, as if something were pushing up under the arch. Push down hard until I ask you to stop.....Good. Now slowly relax your foot. Relax and feel the tension in your muscles ebbing away. Feel the muscles smoothing out and feel how heavy and relaxed your right foot and leg feel.

This time I'm going to ask you to tighten the muscles of your left upper leg. Pay close attention to these muscles and feel how tense they are. Hold this position until I tell you to relax.....And relax. Relax all the muscles in your left upper leg and feel the relaxation and warmth spreading through them. Note how heavy your left upper

leg feels as you relax more and more. Relax and picture yourself in your favourite spot, completely relaxed and peaceful. Now again, tense the muscles of your left upper leg. Tense them as much as you can and hold this position. Keep holding it until I tell you to stop...

...Relax. Relax and pay attention only to the muscles of your left upper leg. Notice how they feel as relaxation takes place in them. They are becoming more and more relaxed, much more than ever before.

This time I want you to tighten the muscles of your left calf. Feel how tense the muscles in your left calf are as you stretch your leg out. Stretch it out hard. Now feel how hard your muscles are. Hold that position.....Relax now. Feel the muscles slowly smoothing out. Relax now so that you are completely relaxed. Feel how heavy your left leg feels and how relaxed your left calf is.

This time I want you to push down with the toes of your left foot and arch your foot. Feel the pressure under your arch.....And relax. Just let your left foot and leg go limp. Completely and totally limp and relaxed. Pay attention to the muscles of your left foot and leg and note how they feel as relaxation takes place in them. Good. Now again push down hard with the toes of your left foot and arch. Push down so as you can feel the muscles in your foot tense up. Point your toes and push down hard until I ask you to stop.....And relax. Relax your foot and feel all the tension in your muscles easing slowly away. Feel your muscles smoothing out and feel how warm and heavy and relaxed your left foot and leg feel.

Now, in order to help you feel more relaxed, completely relaxed, I'm going to count backwards from 10 to one; with each count I'd

like you to become a little bit more relaxed and perhaps a little bit more drowsy, sleepy-feeling. At the same time, imagine yourself lying on a warm beach, or in the shade of a cool tree far away from here. Do you see yourself lying somewhere far away from here? Okay.....ten..... nine.....eight.....seven.....six.....five.....four.....three..... two.....and one. Now just keep relaxing like that, deeper and deeper, and enjoy this feeling.....Open your eyes if they were closed and sit up gently. The relaxation training session is over. In order for you to get the most from this training, I'd like you to practice on your own, two or three times a day for about fifteen minutes each time. If you find it impossible to practice that many times each day, do try to practice at least once each day. You'll see how calm, how free of tension, how relaxed and comfortable you will feel. Just remember that all you need to do is tense one group of muscles at a time for a few seconds and then relax them. You don't have to do it in any specific order. What's important is to practice regardless of which muscles you use. This session is over. Thank you very much and remember to practice before our next session.

Session 2

Let's start our second session by having you assume a very comfortable reclining position. I want you to lie back very comfortably. Let your arms hang loose, relax your legs, let go of yourself and clear your mind of any thoughts. Don't think about anything. Just listen to me. Don't exert any energy. Just listen to what I have to say as passively as you can and follow my instructions.

Now I want you to get as comfortable as you can. Let go of all the muscles of your body. Breath deeper and deeper, in and out. Relax your toes and feet: Feel that your ankles and legs are relaxed. Relax your calves ... your knees ... your thighs ... your hips ... and your stomach. Relax more and more. Relax the tension in your chest ... in your shoulders ... in your upper back and in your neck. Relax all over and try to get the feeling that you are slumping effortlessly, completely without effort. Let this good feeling of relaxation slowly spread to your arms and down to the tips of your fingers. Relax your facial muscles fully. Just let your mouth drop and keep your eyes closed to help you relax more and more deeply. Lie there quietly and peacefully, without any effort. Relax deeply and enjoy this good feeling. Picture yourself in your favourite spot and relax fully and completely....

There, now stop relaxing for a moment. I want you to recall your doctor's office. Picture yourself sitting there. Do you see yourself there? Good. See yourself sitting in your doctor's office on the day when he first told you that you needed the operation. Imagine yourself sitting there and listening to him as he discusses the operation with you. Do you see it? Good. Hold this image please..... Now, drop the image and relax. Don't think about that image anymore. Just let all your muscles go loose. Clear your mind of any images and notice feelings of comfort as you relax. Let your whole body feel loose and comfortable. Try and switch off all your muscles. Let go more and more as your muscles become loose and heavy.....That was very good.

Let's try it again. Stop relaxing and recall yourself sitting in your doctor's office listening to him as he discusses the operation with you. Get a clear picture of his office in your mind. He is sitting behind his desk and speaking to you in a soft and gentle voice. See yourself sitting opposite him and listening to every word. Please hold this image, hold it until I ask you to drop it.....Good, now drop the image and relax. Picture yourself relaxing completely in some favourite hideaway. Just let go completely and switch off more and more. Relax to the best of your ability. Feel how relaxed your muscles are. Let your breathing be deep and regular.....You're doing very well so far.

This time I want you to picture yourself at home. Imagine yourself packing some of your necessary belongings into an overnight bag. You are preparing yourself for your stay in the hospital, and so you are putting some of your things into an overnight bag. Hold this image please.....Now drop the image and relax. Clear your mind of any thoughts whatever and listen only to what I say. Let your body relax. Relax more and more. Feel the warmth spreading through your neck and shoulders. Just relax. Good.

Let's try that again. Let your mind drift to your home. Do you see yourself in your home? Good, now, you are putting a few of your things, a few of your necessary belongings into a small overnight bag because you are getting ready to go to the hospital. Hold that image until I ask you to drop it.....Now stop the image and relax. Just switch off the muscles. Let the relaxation spread over your whole body. Let your arms rest in the most comfortable position. Relax all the muscles, beginning with the muscles of your face, down to your chest, your thighs, your calves and toes. Try to achieve complete freedom from tension.

Very good.

Now this time I want you to imagine a different scene. I want you to picture yourself arriving at the hospital on the day of admission. Imagine yourself walking through the lobby of the hospital with your overnight bag in your hand. Do you see yourself? Good, hold that image, the one where you're walking through the hospital lobby towards the Admissions Office.....Drop the image and relax now. Let go completely. Think about a pleasant experience, maybe eating a favourite fruit or listening to your favourite music. Think about that and be completely relaxed, warm and relaxed. No tension anywhere in your body. Very good.

Now, stop relaxing and let's try that scene again. Visualize yourself walking through the lobby of the hospital towards the admitting office. Hold that image until I tell you to stop....Now, stop visualizing that and go on relaxing, feel completely relaxed, warm and relaxed, let your whole body feel loose and comfortable.

This time I want you to picture yourself sitting in the Admissions Office of the hospital. Hold the image of yourself in the admitting office of the Jewish General Hospital....Good, now stop visualizing that scene and just relax. Let the relaxation spread over your entire body. Just feel warm and heavy.....Once more, picture yourself sitting in the Admissions Office at the Jewish General Hospital, one day before the operation.....Stop the image and relax. Relax all your muscles beginning with the facial muscles, down to your chest, your stomach, your thighs, your calves and your toes. Let your breathing be deep and regular and relax completely.

This time, I want you to visualize yourself listening closely

to the anaesthetist as he fills you in on some of the details of the operation. Hold that image of yourself, the one in which you're listening to the anaesthetist.....Now stop visualizing that scene and go on relaxing. Become completely free from tension, completely relaxed. Feel warm and heavy.

Now stop relaxing and once again I want you to image yourself in the hospital on the day before the operation. I want you to visualize yourself lying in bed and listening closely to the anaesthetist as he talks to you.....Stop the image and relax. Let all your muscles go loose and soft, warm and heavy and become completely relaxed.

Let's try that scene one more time. Picture yourself lying in your hospital bed on the day before the operation, listening closely to the anesthetist as he talks to you about the operation. Hold that scene for a few moments.....Now stop visualizing that and go on relaxing. Picture yourself engaging in some favourite activity, maybe just lying under a tree reading a good book. While you're picturing yourself in some quiet and relaxing place let the relaxation spread over your entire body. Breathe deeply and regularly and just relax.....That's five, you're doing very well.

Now this time I want you to visualize yourself lying in your hospital bed on the morning of the operation. Picture a nurse coming into your room. She has come to prepare you for the operation. Hold that image in your mind until I tell you to drop it.....Now, stop the image and relax. Relax all your muscles. Let your breathing be deep and regular. Become completely free from tension, completely relaxed..... Okay.

Once more, visualize yourself lying in your hospital bed on the morning of your operation. Picture a nurse in your room. She has come to prepare you for the operation.....Hold that image.....Hold it until I ask you to stop.....Stop visualizing that and go on relaxing. Become completely relaxed, no tension anywhere in your body, just warmth and relaxation.....

Let's try that scene just one more time. Visualize yourself lying in your hospital bed. It's the morning of the operation. Now picture a nurse in your room. She has come to prepare you for the operation.....And, drop the image and relax in your comfortable chair. Relax fully and enjoy the state of comfort and quietness. Feel warm and heavy. Breathe deeply and regularly, no tension anywhere in your body.

We are now approaching the end of our second session. Before you get up I want you to begin breathing deeply and to relax more and more with every breath. Take your first deep breath.....Now, relax as fully as you can.....Now, take a second deep breath.....and relax even more.....keep on relaxing more and more.....That's very good. Thank you very much. This session is over. You can sit up now. Before I see you again, remember to practice your relaxation.

Session 3

Let's begin our third session by having you sit in a very comfortable reclining position. I want you to lie back very comfortably. Let your arms hang loose. Relax your legs. Just let go of yourself and clear your mind of any thoughts. Don't think about anything. Don't exert any energy. Just listen to what I say as passively as you can and

follow my suggestions.

Now, I want you to get as comfortable as you can. Let go of all the muscles of your body.....Breathe deeper and deeper, in and out. Relax your toes and feet. Feel that your ankles and legs are relaxed. Relax your calves.....your knees.....your thighs.....your hips and your stomach.....Relax them more and more.....Let the tension go out of your chest.....out of your shoulders.....your upper back.....and your neck. Relax all over and just get the feeling that you are slumping effortlessly, completely without effort. Let the relaxation slowly spread to your arms and down to the tips of your fingers. Feel warm all over. Relax your facial muscles fully. Just let the muscles in your face droop and keep your eyes closed to help you relax more and more deeply. Lie there quietly and peacefully, completely without effort. Relax deeply and just enjoy this good feeling. Relax fully and completely.... Good.

Now, I want you to stop relaxing. I want you to picture yourself lying on your hospital bed the morning of the operation. Picture a nurse entering your room. The nurse is coming to prepare you for the operation. Hold that image in your mind until I tell you to drop it.....Now, stop the image and relax. Let go completely, and become completely relaxed, warm and relaxed, no tension anywhere in your body.....Very good.

Now again, I want you to picture yourself lying in your hospital bed. This time though, I want you to imagine that the nurse has just left your room. You are beginning to feel very sleepy, very groggy. Hold that image of yourself.....Hold it until I ask you to stop.....Stop visualizing that scene and go on relaxing. Feel completely relaxed,

warm and relaxed, just let your whole body feel loose and comfortable. That's good. Let's try that scene again. Stop relaxing and picture yourself lying in your hospital bed. The nurse has just left the room and you are beginning to feel very groggy. You feel like you're going to fall asleep.....Hold that image.....Now stop the image and relax. Picture yourself lying very quietly in the warm sunlight of a summer's day. Just let the relaxation spread over your entire body.....Feel warm and heavy, loose and comfortable.....

Once again, picture yourself slowly dozing off after the nurse has left your room. Hold that image until I ask you to relax..... Now stop that image and relax. Just relax all your muscles, beginning with your facial muscles.....your chest muscles.....your stomach muscles. ....Your thighs.....calves.....and to[redacted]et your breathing be deep and regular and relax completely.

Now this time I want you to picture yourself just minutes before the operation. You are being helped out of your pyjamas and into a loose-fitting shirt which the nurse has prepared for you..... Now stop visualizing that and go on relaxing. Become completely free from tension, completely relaxed, warm and relaxed. Just stay like that for a few seconds.....

Good, now once again, picture yourself just minutes before the operation, you are being dressed in a loose-fitting white shirt for the operation. Just hold that image until I ask you to relax.....And relax. Stop visualizing that scene and go on relaxing. Become completely free from tension, completely relaxed, warm and relaxed.....

Stop relaxing. This time I want you to picture a surgical orderly. Now I want you to picture the orderly wheeling you through

the hospital corridors towards the operating room. Hold that image in your mind.....Stop the image and relax. Relax all your muscles. Let your breathing be deep and regular. Become completely free from tension, completely relaxed.....Very good.

Let's try that scene again. Imagine yourself being wheeled through the corridors of the hospital towards the operating room. Hold that image until I ask you to relax.....Now stop visualizing that and go on relaxing, become completely relaxed, no tension anywhere in your body, just warmth and relaxation.....Good. One more time. Picture a surgical orderly wheeling you through the hospital corridors towards the operating room. Hold that image of yourself. Hold it until I ask you to drop it. ...Stop visualizing that and go on relaxing. Let the relaxation spread over your entire body. Keep on breathing deeply and regularly and just relax.

Good. Now this time I want you to picture yourself in the pre-operating room. This is a room right next to the operating room where you are waiting to be prepated for the operation.....Now drop the image and relax in your comfortable chair. Relax fully and enjoy the state of comfort and peace. Feel warm and heavy. Breathe deeply and regularly, no tension anywhere in your body.

Let's try that scene again. Picture yourself lying on a bed in the pre-operating room, ready to be prepared for the operation. Hold that image.....Now drop the image and relax again, relax all your muscles, just let them go loose. Notice the feeling of warmth and comfort. Let your whole body experience this good feeling of relaxation.

One more time now, imagine yourself lying in the pre-operating room. It's only moments before the operation. You are waiting to be

prepared for the operation. You are feeling sleepy, groggy. Hold that image please.....Now drop the image and relax, Let go completely and relax all your muscles. Let your breathing be deep and regular, deep and regular.....Picture yourself quietly relaxing in your favourite spot.....Hold that image.....

This time I want you to imagine yourself being prepared for the operation. Imagine yourself being made ready for the operation..... Relax now. You're doing very well. Now, let all your muscles go loose. Feel warm and relaxed, heavy and warm.....

Again, I want you to imagine yourself just moments before the operation. Picture yourself being prepared for the operation. Picture yourself being prepared for the operation by some nurses. Hold the image when you see the nurses preparing you for the operation.....Now drop the image and relax. Just let go completely and feel the pleasure of relaxation.....Picture yourself engaging in your favourite relaxing activity and breathe slowly and deeply.

Let's try that scene one more time. I want you to picture yourself being wheeled into the operating room by the surgical orderly. Hold the image in your mind of yourself being wheeled into the operating room.....Now drop the image and relax in your comfortable chair. Picture yourself lying on the beach in the warm sunlight. Perhaps you are all alone on the beach and you're very comfortable and relaxed. Relax your muscles fully and enjoy the state of comfort and quiet. Just feel warm and heavy. No tension anywhere in your body.

We are now approaching the end of our third session. Before you get up though, I want you to begin breathing deeply and to relax more and more with every breath. Take your first deep breath.....

Now relax all at once.....Now, take a second deep breath.....This time, relax even more.....Keep on relaxing more and more.

I hope this session was pleasant for you. Thank you very much. You can get up now but please remember to practice your relaxation before I see you again.

Session 4

Let's begin our fourth session by having you sit again in a very comfortable and reclining position. I want you to lie back very comfortably. Let your arms hang loose. Relax your legs. Just let go of yourself and clear your mind of any thoughts. Just don't think about anything. Don't exert any energy. Just listen to what I say as passively as you can and follow my suggestions.

I want you to let go of all the muscles of your body. Breathe deeper and deeper, in and out. Relax your toes and feet. See that your ankles and legs are relaxed. Relax your calves,,...your knees..... your thighs, ...your hips,.....and your stomach. Relax more and more. Let the tension go out of your chest,.....out of your shoulders,..... your upper back,.....and your neck. Relax all over and just get the feeling that you are slumping effortlessly, completely without effort. Let the relaxation slowly spread to your arms.....and down to the tips of your fingers. Feel warm all over. Relax your facial muscles fully. Just let the muscles in your face drop and keep your eyes closed to help you relax more and more deeply. Lie there quietly and peacefully..... completely without effort. Relax deeply and just enjoy this good feeling. Relax fully and completely.

Now, I want you to picture yourself being wheeled into the operating room. Hold the image of yourself being wheeled into the operating room by a surgical orderly.....And stop. Drop the image and relax. Picture yourself relaxing in your favorite spot. Let go completely. Become deeply relaxed. Feel no tension in your body. No tension whatsoever. Good.

Now, this time I want you to picture yourself just having been given the anaesthesia by the anaesthetist. Imagine yourself being given the anaesthesia.....Stop visualizing that scene and go on relaxing. You're completely relaxed. Warm and relaxed. Just let your whole body feel loose and comfortable.....Again, picture yourself being given anaesthesia by the anaesthetist. Hold the image of yourself in the operating room - the anaesthetist giving you anaesthesia.....Now, stop the image and relax. Let the relaxation spread over your entire body. Picture yourself lying on a beach somewhere basking in the warm sunlight. Just feel warm and heavy, loose and comfortable.

Let's go over that scene again. Picture the anaesthetist giving you the anaesthesia. Hold that image please.....Now, stop the image and relax. Forget about that scene and relax all your muscles. Feel warm and heavy. Let your breathing be deep and regular and feel loose and comfortable.

Now, this time, I want you to picture yourself after the anaesthesia has put you to sleep. Can you see yourself? Visualize yourself under the effect of the anaesthesia, sleeping on the operating table.....Stop visualizing that and go on relaxing. Become completely free from tension, completely relaxed, more relaxed than ever before.....

Let's go over that scene again. I want you to imagine yourself after the anaesthesia has had its effect. Picture yourself fast asleep on the operating table.....And relax. Become completely free from tension and relax all your muscles. Just feel warm and heavy. Let your body feel tingly all over from the relaxation.....Good.

Let's do that one more time. Picture yourself in the operating room, fast asleep from the anaesthesia. Hold the image in your mind for a few seconds.....Now, stop visualizing that scene and go on relaxing. Let the relaxation spread slowly over your entire body..... Feel your muscles go limp. Breath deeply and regularly, and relax..... Good.

Now, this time I want you to picture yourself during the operation. Visualize yourself imagining that something worse is wrong with you.....Stop the image and relax. Relax all your muscles and let your breathing be deep and regular. Become completely free from tension. completely relaxed and comfortable.....Good.

Now, this is an image that people commonly have before an operation: so, let's try it again. Picture yourself in the operating room during the operation. See yourself imagining that the doctor will find something else wrong with you, something worse. Hold that image of yourself just imagining this.....And relax now. Relax in your comfortable chair and enjoy this state of deep comfort and warm relaxation. Picture yourself in the cool shade of a large tree. Maybe you're reading or just dozing off. Feel warm and heavy and relaxed..... You're doing very well.

Let's go over the previous scene one more time. I want you to visualize yourself in the operating room during the operation. See yourself imagining that the doctor will find something else wrong with

you. Hold that image of yourself imagining this.....Now, drop the image and relax.....Let all your muscles go loose and note the feeling of warmth and comfort. Let your whole body experience this good feeling of relaxation.

Now, this time I want you to imagine yourself waking up in the recovery room feeling groggy and nauseous. Picture yourself feeling heavy and sore all over.....And relax. Just let go completely and feel the pleasure of relaxation. Breathe slowly and deeply and feel warm and comfortable all over.

Again, I want you to picture yourself waking up in the recovery room. Imagine yourself feeling groggy and heavy. Imagine that you have a nauseous feeling inside of you. Hold that image in your mind for a few seconds.....Now, stop visualizing that scene and relax. Feel completely relaxed, warm and heavy and tingly all over. Just let your whole body feel loose and comfortable. Enjoy the good feeling of relaxation.....Very good.

Let's go over that scene once more. Picture yourself in the recovery room after the operation, feeling very groggy, nauseous and sore after the deep sleep. Hold the image please.....And relax. Just let your whole body feel loose and comfortable. Relax <u>all</u> your muscles and breathe deeply and regularly. You are deeply relaxed and I want you to enjoy this feeling of deep relaxation.

We have now reached the end of our fourth session. Before we end though, I want you to begin breathing deeply, and to relax more and more with every breath. Take your first deep breath....and now relax as fully as you can. Keep on relaxing more and more.....You may sit up now. Thank you very much.

Session 5

Let's begin our fifth session by having you sit comfortably in a reclining position. I want you to lie back very comfortably. Just let your arms hang loose. Relax your legs. Just let go of yourself and clear your mind of any thoughts. Don't think about anything. Don't exert any energy. Just listen to what I say as passively as you can and follow my instructions.

Now, get as comfortable as you can. Let go of all the muscles of your body. Breathe deeper and deeper, in and out. Relax your toes and feet. See that your ankles and legs are relaxed. Relax your calves, your knees.....your thighs.....your hips.....and your stomach.....Relax more and more. Just let all the tension go out of your chest.....your shoulders.....your upper back.....and your neck. Relax all over and just get the feeling that you are slumping without effort. Let the relaxation slowly spread to your arms and down to the tips of your fingers. Feel warm all over. Relax your facial muscles fully. Just let the muscles in your face droop and keep your eyes closed to help you relax more and more deeply. Lie there quietly and peacefully. Relax deeply and just enjoy this good feeling. Relax fully and completely.....

Now, stop relaxing for a moment. I want you to picture yourself waking up in the recovery room. Imagine yourself feeling very groggy and heavy. Picture yourself feeling heavy and sore all over..... And relax. Just let your muscles go completely limp and feel the pleasure of deep relaxation. Breathe slowly and deeply and feel warm and comfortable all over.....

This time, I want you to visualize yourself back in your hospital room after the operation. The anaesthetic is slowly wearing off

and I want you to imagine feeling pain around the area of the incision... Hold that image please.....Now, stop visualizing that scene and go on relaxing. Feel completely relaxed. Warm and relaxed. Just let your whole body feel loose and comfortable.....Good.

Let's try that scene again. Picture yourself back in your room after the operation. See yourself feeling the anaesthetic slowly losing its effect. You are beginning to feel some pain in the incision area. Hold that image until I ask you to relax.....Now, stop the image and relax. Let the relaxation spread over your entire body. Just feel warm and heavy.....Picture yourself engaged in your very favorite activity, the one in which you're most relaxed.....

Let's try that one more time. Picture yourself in your room after the operation. Imagine yourself realizing that the anaesthetic is wearing off. There is a dull pain everywhere but especially near the incision. Hold that image.....Now stop the image and relax. Relax all your muscles and feel warm and heavy. Let your breathing be deep and regular and feel loose and comfortable.....

Now, this time, I want you to picture your room. Imagine yourself looking around the hospital room and thinking to yourself that everything is so cold and impersonal in the hospital. Hold that image until I ask you to relax.....Now, stop visualizing that and go on relaxing. Become completely free from tension, completely relaxed.....Calm and relaxed.

Let's try that image again. Picture yourself after the operation in your hospital room. Imagine yourself thinking that everything in the hospital is so cold and impersonal. Visualize yourself thinking that even the doctors and nurses seem cold and impersonal.....The doctors, the

nurses, the room, the food.....And relax. Become completely free from tension and relax all your muscles. Just feel warm and heavy and relax completely.....

Let's go over that scene one more time. Visuzlize yourself in your room after the operation. Imagine yourself looking around, looking around and thinking that everything in the hospital is so cold and impersonal. Picture yourself thinking that even the doctors and nurses aren't as warm as you had hoped. Hold that image please.....Stop visualizing that scene and go on relaxing. Let the relaxation spread slowly over your entire body.....Feel your muscles go limp. Breathe deeply and regularly and relax.....Good, You're doing very well.

Now, this time I want you to picture yourself feeling a lot of pain around the incision area. Visualize yourself feeling as though the stitches will pop open with <u>every</u> move.....Stop that image and relax. Clear your mind of any thoughts and relax all your muscles. Let your breathing be deep and regular. Be completely free from tension, completely relaxed and comfortable. Picture yourself engaging in your very favorite activity, the one in which you're most relaxed and be completely free from tension.....

Now, stop relaxing and let's try that again. Imagine yourself in pain after the operation, in <u>bad</u> pain, especially while coughing and moving around in bed.....And relax now. Relax in your comfortable chair and enjoy the state of comfort and quietness. Feel warm and heavy and relaxed all over. Once again, I want you to picture yourself feeling a great deal of pain. Visualize yourself feeling as though the stitches will pop open with every more.....Drop the image and relax. Let all your muscles go loose. Notice the feeling of warmth and comfort. Let your

whole body experience this good feeling of relaxation.

Now, this time I want you to visualize yourself lying in your hospital bed after the operation. Picture yourself in bad pain..... And relax. Just let go completely and feel the pleasure of relaxation. Breathe slowly and deeply and feel warm and comfortable all over. Visualize yourself in a park perhaps, just relaxing on a cool autumn day. Hold that image and relax.....

Again, I want you to imagine yourself experiencing almost unbearable pain after the operation. Imagine yourself thinking about all sorts of complications. Imagine yourself thinking about the worst... Now stop visualizing that scene and go on relaxing. Just relax completely. You are warm and relaxed. Breathe deeply and regularly.... Good.

Let's try that one more time. Picture yourself in terrible pain after the operation. Picture yourself thinking about the worst because of the pain.....And relax. Just let your whole body feel loose and comfortable. Relax all your muscles.....your toes.....your calves... your thighs.....your stomach.....Relax your back.....your chest..... your shoulders.....your arms.....your hands.....your fingertips. Relax your jaw muscles... and your forehead. Just breathe deeply and regularly and enjoy the feeling of deep relaxation. This is our last session. I hope you have found the five sessions helpful. Before we end though, I want you to begin breathing deeply and relax more and more with every breath. Breathe in and out, and relax.....Keep on relaxing more and more.....You may sit up now. Thank you very much again.

Appendix I

Text of Placebo Treatment Tape

Placebo Treatment

Please seat yourself comfortably. First, let me take this opportunity to thank you for participating in this study. I hope that you will find our meetings enjoyable and I am certain that our five sessions together will be of great help to you, especially during the next two weeks, during your operation and recovery period. Today, I would like to explain to you what we will be doing together during the next few days. Then I would like to explain to you why it will help you. Before we being though, let me assure you that both your doctor and I are very much interested in your comfort and well-being during your upcoming hospitalization, and it is for this reason that we feel that these sessions with me will be of enormous benefit to you. We at the Jewish General Hospital are very much interested in your comfort and well-being during your stay with us.

Now, let me tell you a little bit about the rest of this session and our next four together. In about five days you are going to have your operation. Most people who are about to have an operation, even a minor one, get a little nervous about it. Of course, there are some people who do not feel nervous about operations at all. Nevertheless, there are many who, even when they think about an operation, feel a little nervous. These feelings which people experience are just like the feelings they get in other stressful situations. You probably get the feelings you do about your operation because of your own past experience or things you heard relating to doctors, hospitals, or operations.

We have found that people experience less tension if they try to relax. One way of relaxing is to listen to calming or soothing

music. In fact, listening to quiet music has been found to be so relaxing that many dentists have been using this technique in their private practice.

During the rest of this session and the next four, I will play a type of music which has been found to be very relaxing. I would like you to make yourself comfortable in your chair, close your eyes and just listen to the music.

Appendix J

Tables

Table A

Summary of Wilcoxon T-Values Associated with Changes in Pain Severity Scores from Pretreatment to Posttreatment

Group	n[a]	T-Value	p-Value[b]
Information	16 (12)	20	n.s.
Desensitization	16 (13)	26.5	n.s.
Placebo	16 (13)	37.5	n.s.
Control	16 (12)	34	n.s.

[a]Numbers in parentheses indicate the number of patients whose scores changed from pretreatment to posttreatment.

[b]two-tailed tests.

Table B

Analysis of Variance of Fear of Anatomical Destruction and Pain Scores at Pretreatment, Posttreatment, Presurgery, and Postsurgery as a Function of Time, Treatment, Doctor, Type of Operation and Sex

Source	df	MS	F
Time (A)	3	70.55	9.55*
A x B	9	89.26	12.08*
A x C	3	7.85	1.06
A x D	3	1.52	.21
A x E	3	3.12	.42
A x B x C	9	7.17	.97
A x B x D	9	7.17	.97
A x B x E	9	7.27	.98
A x C x D	3	7.85	1.06
A x C x E	3	0.44	.59
A x D x E	3	5.44	.74
A x B x C x D	9	4.07	.55
A x B x C x E	9	5.50	.74
A x B x D x E	9	9.34	1.26
A x C x D x E	3	0.85	.12
A x B x C x D x E	9	4.37	.59
Error Within	96	7.39	.59
Treatment (B)	3	645.47	.78
Doctor (C)	1	52.56	.64
Operation (D)	1	45.56	.55
Sex (E)	1	361.00	.44
B x C	3	76.82	.93
B x D	3	400.74	.48
B x E	3	655.12	.79
C x D	1	175.56	.21
C x E	1	22.56	.27
B x C x D	3	147.44	.18
B x C x E	3	781.68	.95
D x E	1	945.56	1.14
B x D x E	3	627.22	.76
C x D x E	1	217.56	.26
B x C x D x E	3	337.64	.41
Error Between	32	825.71	

*$p < .001$.

Table C

Summary of Paired Comparisons of Mean Self-Reported Fear of Anatomical Destruction and Pain Scores Between Conditions at Pretreatment, Posttreatment, Presurgery and Postsurgery

Time	Group		
	Desensitization	Placebo	Control
Pretreatment			
Information	.19	.56	.00
Desensitization		.75	.19
Placebo			.56
Posttreatment			
Information	1.50	3.63*	6.88*
Desensizization		5.13*	8.38*
Placebo			3.25*
Presurgery			
Information	2.24	5.19*	7.06*
Desensitization		7.43*	9.30*
Placebo			1.87
Postsurgery			
Information	1.68	7.32*	7.75*
Desensitization		9.00*	9.43*
Placebo			.43

Note. The smallest mean difference required for significance at the .05 level (Tukey test with Cicchetti's adjustment) using two-tailed tests was 3.13.

*$p < .05$.

Table D

Summary of Paired Comparisons of Mean Self-Reported Fear of Anatomical Destruction and Pain Scores Within Each Treatment Condition at Pretreatment, Posttreatment, Presurgery and Postsurgery

Group	Time		
	Posttreatment	Presurgery	Postsurgery
Information			
Pretreatment	5.13*	5.25*	11.38*
Posttreatment		.12	6.25*
Presurgery			6.13*
Desensitization			
Pretreatment	6.82*	7.68*	13.25*
Posttreatment		.86	6.43*
Presurgery			5.57*
Placebo			
Pretreatment	.94	.50	3.50*
Posttreatment		1.44	2.56
Presurgery			4.00*
Control			
Pretreatment	1.75	1.81	3.63*
Posttreatment		.06	5.38*
Presurgery			5.44*

Note. The smallest mean difference required for significance at the .05 level (Tukey test with Cicchetti's adjustment) using two-tailed tests was 3.13.

*$p < .05$.

Table E

Analysis of Variance of State Anxiety Scores at Pretreatment, Posttreatment, Presurgery, and Postsurgery as a Function of Time, Treatment, Doctor, Type of Operation and Sex

Source	df	MS	F
Time (A)	3	94.63	12.12*
A x B	9	81.76	10.48*
A x C	3	1.19	.15
A x D	3	1.34	.17
A x E	3	2.28	.29
A x B x C	9	9.43	1.21
A x B x D	9	3.48	.45
A x B x E	9	9.26	1.19
A x C x D	3	13.80	1.77
A x C x E	3	18.30	2.34
A x D x E	3	14.32	1.84
A x B x C x D	9	5.49	.70
A x B x C x E	9	5.19	.66
A x B x D x E	9	15.18	1.94
A x C x D x E	3	1.01	.13
A x B x C x D x E	9	4.80	.62
Error Within	96	7.80	
Treatment (B)	3	580.36	.58
Doctor (C)	1	11.39	.11
Operation (D)	1	50.77	.51
Sex (E)	1	506.25	.51
B x C	3	156.09	.16
B x D	3	348.17	.35
B x E	3	709.91	.71
C x D	1	34.52	.34
C x E	1	5.06	.51
B x C x D	3	167.61	.17
B x C x E	3	1127.70	1.13
D x E	1	1580.06	1.58
B x D x E	3	891.66	.89
C x D x E	1	210.25	.21
B x C x D x E	3	408.36	.41
Error Between	32	1001.18	

*$p < .001$.

Table F

Summary of Paired Comparisons of Mean Self-Reported State Anxiety Scores Between Conditions at Pretreatment, Posttreatment, Presurgery and Postsurgery

Time	Group		
	Desensitization	Placebo	Control
Pretreatment			
Information	.06	.25	.69
Desensitization		.19	.75
Placebo			.94
Posttreatment			
Information	1.25	4.31*	8.75*
Desensitization		5.56*	10.00*
Placebo			4.44*
Presurgery			
Information	2.62	3.75*	8.57*
Desensitization		6.37*	11.19*
Placebo			4.82*
Postsurgery			
Information	.37	4.75*	4.13*
Desensitization		5.12*	4.50*
Placebo			.62

Note. The smallest mean difference required for significance at the .05 level (Tukey test with Cicchetti's adjustment) using two-tailed tests was 3.17.

*$p < .05$.

Table G

Summary of Paired Comparisons of Mean Self-Reported State Anxiety Scores for Each Treatment Condition at Pretreatment, Posttreatment, Presurgery and Postsurgery

Group	Time		
	Posttreatment	Presurgery	Postsurgery
Information			
Pretreatment	6.19*	5.13*	11.19*
Posttreatment		1.06	5.00*
Presurgery			6.06*
Desensitization			
Pretreatment	7.38*	7.69*	11.50*
Posttreatment		.31	4.12*
Presurgery			3.81*
Placebo			
Pretreatment	1.63	1.13	6.19*
Posttreatment		.50	4.56*
Presurgery			5.06*
Control			
Pretreatment	1.87	2.75	7.75*
Posttreatment		.88	9.62*
Presurgery			10.50*

Note. The smallest mean difference required for significance at the .05 level (Tukey test with Cicchetti's adjustment) using two-tailed tests was 3.17.

*$p < .05$.

Table H

Analysis of Variance of Trait Anxiety Scores at Pretreatment, Posttreatment, Presurgery, and Postsurgery as a Function of Time, Treatment, Doctor, Type of Operation and Sex

Source	df	MS	F
Time (A)	3	7.45	3.21*
A x B	9	6.87	2.96**
A x C	3	1.09	.47
A x D	3	2.23	.96
A x E	3	2.04	.88
A x B x C	9	0.60	.26
A x B x D	9	1.36	.59
A x B x E	9	0.72	.31
A x C x D	3	2.57	1.11
A x C x E	3	0.30	.13
A x D x E	3	1.16	.50
A x B x C x D	9	2.94	1.27
A x B x C x E	9	4.28	1.84
A x B x D x E	9	3.36	1.45
A x C x D x E	3	1.07	.46
A x B x C x D x E	9	1.76	.76
Error Within	96	2.32	
Treatment (B)	3	55.27	.72
Doctor (C)	1	11.82	.15
Operation (D)	1	19.69	.25
Sex (E)	1	597.19	.77
B x C	3	887.68	1.15
B x D	3	115.72	.15
B x E	3	716.85	.92
C x D	1	8.63	.11
C x E	1	0.39	.51
B x C x D	3	196.99	.25
B x C x E	3	295.28	.38
D x E	1	1203.22	1.56
B x D x E	3	836.38	1.08
C x D x E	1	238.32	.31
B x C x D x E	3	334.89	.43
Error Between	32	772.64	

*$p < .05$.

**$p < .01$.

Table I

Summary of Paired Comparisons of Mean Self-Reported Trait Anxiety Scores for Each Treatment Condition at Pretreatment, Posttreatment, Presurgery and Postsurgery

Group	Time		
	Posttreatment	Presurgery	Postsurgery
Information			
Pretreatment	.75	1.57	.32
Posttreatment		.02	.43
Presurgery			1.25
Desensitization			
Pretreatment	.57	2.25*	1.37
Posttreatment		1.68	.80
Presurgery			.88
Placebo			
Pretreatment	.20	.37	.62
Posttreatment		.57	.82
Presurgery			.25
Control			
Pretreatment	.00	.18	.75
Posttreatment		.18	.75
Presurgery			.57

Note. The smallest mean difference required for significance at the .05 level (Tukey test with Cicchetti's adjustment) using two-tailed tests was 1.75.

*$p < .05$.

Table J

Summary of Paired Comparisons of Mean Self-Reported Trait Anxiety Scores Between Conditions at Pretreatment, Posttreatment, Presurgery and Postsurgery

Time	Group		
	Desensitization	Placebo	Control
Pretreatment			
Information	.06	.87	.38
Desensitization		.03	.32
Placebo			1.25
Posttreatment			
Information	1.38	.32	1.13
Desensitization		1.70	.25
Placebo			1.45
Presurgery			
Information	3.88*	1.07	2.13*
Desensitization		2.81*	1.75*
Placebo			1.06
Postsurgery			
Information	1.75*	.07	1.45
Desensitization		1.68	.30
Placebo			1.38

Note. The smallest mean difference required for significane at the .05 level (Tukey test with Cicchetti's adjustment) using two-tailed tests was 1.75.

*$p < .05$.

Table K

Analysis of Variance of Number of Postoperative Days in Hospital as a Function of Experimental Group

Source	df	MS	F
Between	3	2.68	.80
Within	60	3.36	
Total	63		

Table L

Analysis of Variance of Total Amount of Medication (milligrams) Consumed Postoperatively as a Function of Experimental Group

Source	df	MS	F
Between	3	10.78	1.08
Within	60	9.99	
Total	63		

Table M

Analysis of Variance of Amount of Demerol (milligrams) Consumed Postoperatively as a Function of Experimental Group

Source	df	MS	F
Between	3	.19	.39
Within	60	.48	
Total	63		

Table N

Analysis of Variance of Amount of Gravol (milligrams) Consumed Postoperatively as a Function of Experimental Group

Source	df	MS	F
Between	3	.23	.62
Within	60	.45	
Total	63		

Table 0

Analysis of Variance of Amount of Leritene (milligrams) Consumed Postoperatively as a Function of Experimental Group

Source	df	MS	F
Between	3	.65	1.71
Within	60	.38	
Total	63		

Table P

Analysis of Variance of Amount of Nembutal (milligrams) Consumed Postoperatively as a Function of Experimental Group

Source	df	MS	F
Between	3	1.44	.67
Within	60	2.12	
Total	63		

Table Q

Analysis of Variance of Amount of Darvon (milligrams) Consumed Postoperatively as a Function of Experimental Group

Source	df	MS	F
Between	3	.43	.24
Within	60	1.78	
Total	63		