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THE MODIFICATION OF SELF-CONCEPT, ANXIETY AND NEURO-MUSCULAR PERFORMANCE THROUGH RATIONAL STAGE DIRECTED HYPNOTHERAPY: A COGNITIVE EXPERIENTIAL PERSPECTIVE USING COGNITIVE RESTRUCTURING AND HYPNOSIS.

THE OHIO STATE UNIVERSITY, PH.D., 1979
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THE MODIFICATION OF SELF-CONCEPT, ANXIETY
AND NEURO-MUSCULAR PERFORMANCE
THROUGH RATIONAL STAGE DIRECTED HYPNOTHERAPY:
A COGNITIVE EXPERIENTIAL PERSPECTIVE
USING COGNITIVE RESTRUCTURING AND HYPNOSIS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
William Lee Howard, B.S., M.S.

* * * * *

The Ohio State University
1979

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VITA

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>ii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vita</td>
<td>iii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vii</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
</tr>
<tr>
<td>I. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Purpose</td>
<td>8</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>8</td>
</tr>
<tr>
<td>Need for the Study</td>
<td>9</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>12</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>12</td>
</tr>
<tr>
<td>II. Review of Related Literature</td>
<td>15</td>
</tr>
<tr>
<td>Self-Concept and Performance</td>
<td>15</td>
</tr>
<tr>
<td>The Measurement of the Self-Concept</td>
<td>24</td>
</tr>
<tr>
<td>Anxiety and Performance</td>
<td>30</td>
</tr>
<tr>
<td>The Measurement of Anxiety</td>
<td>35</td>
</tr>
<tr>
<td>Hypnosis and Performance</td>
<td>38</td>
</tr>
<tr>
<td>Cognitive Therapy</td>
<td>46</td>
</tr>
<tr>
<td>Rational Stage Directed Hypnotherapy</td>
<td>64</td>
</tr>
<tr>
<td>III. Method</td>
<td>70</td>
</tr>
<tr>
<td>Selection of Instruments</td>
<td>71</td>
</tr>
<tr>
<td>Selection of Sample</td>
<td>77</td>
</tr>
<tr>
<td>Research Design</td>
<td>78</td>
</tr>
<tr>
<td>Treatments</td>
<td>80</td>
</tr>
<tr>
<td>IV. Analysis of Data</td>
<td>93</td>
</tr>
<tr>
<td>V. Summary and Conclusions</td>
<td>105</td>
</tr>
<tr>
<td>Discussion</td>
<td>107</td>
</tr>
<tr>
<td>Conclusions and Recommendations</td>
<td>109</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Psychosomatic Disorders and Associated Attitudes</td>
<td>50</td>
</tr>
<tr>
<td>Table 2</td>
<td>Marginal Means and Univariate F Tests for Individual Dependent Variables</td>
<td>95</td>
</tr>
<tr>
<td>Table 3</td>
<td>Univariate F's and P's for Interaction Between the Specific Group Comparison (RSDH vs. Control + CO + HO) and Repeated Measures</td>
<td>97</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Freeman's Inverted &quot;U&quot; Hypothesis of the Relationship Between Arousal and Performance</td>
<td>31</td>
</tr>
<tr>
<td>Figure 2</td>
<td>4 x 3 Model.</td>
<td>79</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Treatment Effects of Groups Across Pre, Post I, and Post II on TSCS Total Self-Concept Score</td>
<td>98</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Treatment Effects of Groups Across Pre, Post I, and Post II on State Anxiety Scores on the STAI</td>
<td>99</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Treatment Effects of Groups Across Pre, Post I, and Post II on Trait Anxiety Scores on the STAI</td>
<td>100</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Treatment Effects of Groups Across Pre, Post I, and Post II on Chest Measurements in Inches</td>
<td>101</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Treatment Effects of Groups Across Pre, Post I, and Post II on Dominant Arm Measurements in Inches</td>
<td>102</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Treatment Effects of Groups Across Pre, Post I, and Post II on Prone Barbell Presses in Pounds</td>
<td>103</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Maximizing human potential in the area of performance has strong positive implications for society at large. This goal, increasing performance in the normal population, is now becoming a legitimate pursuit of the psychological community (Mahoney, 1977). For both clinical and nonclinical populations, the enhancement of performance can have a positive effect on major areas of human behavior including social intercourse, vocational and avocational pursuits.

Although the social sciences (and specifically psychology) have studied both nonclinical and clinical populations, much of the theory of behavior and therapeutic techniques are based on work with clinical populations. Techniques such as cognitive restructuring, systematic desensitization, progressive muscle relaxation and hypnosis are typically associated with treatment of psychopathological disorders. Recently these techniques have received wide application to areas of normal human performance enhancement (Garver, 1977; Mahoney and Avener, 1977). Indeed a byproduct of western industrial and technological advancement, is increased leisure time and activity. Many people choose to participate in a wide variety of athletic endeavors to structure their increasing amounts of free time.
Mahoney (1977) has suggested that performance in sports settings is a fertile ground for research and lists several reasons (the current research is for the most part poorly conducted according to Mahoney). First, sports is a pervasive aspect of our culture. This seems obvious in light of the current popularity of jogging, tennis, handball and many other recreational activities. Mahoney further points out that sports are well suited to quantitative research (shots attempted and shots made, weight lifted, a runner's time over a specific distance, etc., all provide real life, quantitative measures). Physical activity may be a facilitator of psychological adjustment is Mahoney's third point. Indeed recent research is supportive of this position and Glaser's concept of "positive addiction" illuminates the relationship between certain activity and positive mental health. Mahoney's final point is that competitive athletics offer many parallels to the demands and stresses of everyday life. This position has been supported by research which indicates that an athlete's performance will increase if his overall self-concept also increases (Howard and Reardon, 1978). It is also consistent with Fitts (1965) research on self-concept with clinical and nonclinical populations.

Two major questions should be asked at this time. What psychological variables need to be modified to increase performance? And, what techniques will best facilitate this process? Two major psychological variables, self-concept (Fitts, 1965) and anxiety (Speilberger, 1971) seem to significantly influence of human performance (Ellis, 1977; Howard and Reardon, 1978). These two variables will be addressed below, followed by a discussion of facilitative therapeutic techniques.
The self-concept is commonly thought of as an organizing superstructure giving impetus and direction to our affective, physiological, and behavioral functioning. Maladaptive or negative attitudinal states about self (that is, the self-concept) are related to negative emotions such as anxiety (Ellis, 1962); uncontrollable physiological states such as overarousal, increased heart rate, and perspiration (Graham, 1970); and behavioral dysfunction such as an inability to perform certain tasks (Howard and Reardon, 1978).

Although William James (1890) was one of the first writers to emphasize self-concept, Alfred Adler (1924) was perhaps the first to develop a comprehensive theory around this construct. Adler believed that everyone suffered from inferiority feelings. Individuals who experience unusually intense inferiority feelings engage in maladaptive behavior (aggression, avoidance, self-indulgence, loss of social interest) and unrealistic strivings for superiority. Although all individuals suffer from inferiority, many well adjusted people are able to overcome them by engaging in productive activity, developing appropriate social interest, and realizing their equality with others.

Adler (1924, 1927) further believed that perceptions and interpretations of events are critical determiners of emotion and behavior. This subjectivistic (phenomenological) approach is similar to Ellis's (1962) Rational Emotive Therapy. Ellis (1977) cites some 200 studies which lend support to his position. The primary hypothesis is that high cognitive control exists over all other bodily processes (affective/physiological/behavioral). From this position, self-concept can be viewed as statements about the self which are modified in a positive direction during cognitive therapy.
Raimy (1943, 1975) has addressed self-concept more directly than perhaps any other writer to date. Raimy states, "The self-concept not only organizes and guides behavior, but also requires significant modification for successful psychotherapy." "Misconceptions about self" are primarily associated with pathology and must be changed in the direction of "greater accuracy where his reality is concerned" if pathology is to be minimized or eliminated. Historically, Raimy sees the development of self-concept theory arising from a cognitive perspective and points to Ellis as the leading current proponent.

Fitts (1954, 1965, 1972) has emerged as one of the leading authorities in the empirical investigation and measurement of self-concept. He has examined the relationship between self-concept and performance in countless contexts and populations. Fitts makes two conclusions concerning this relationship based on his research: 1) optimal self-concept is associated with more effective performance, 2) when two individuals have equal ability, the one with the optimal self-concept will perform better.

Another psychological variable which seems to be an important factor in performance is anxiety. Anxiety is an emotional state of unrealistic and exaggerated fear (Beck, 1976). It is often associated with a cognitive component (Ellis, 1962; Speilberger, 1971; Tosi, 1974; Velten, 1968), a perceived inability to predict or deal with the world and its specific trauma (Adler, 1927; Ellis, 1973). The relationship of anxiety and self-concept is thus interactive. Improvements in self-concept may be highly correlated with decreases in negative emotional states (Rardon and Tosi, 1977).
Several laws and theories have attempted to account for the relationship between anxiety and performance. The Yerkes-Dodson law indicates that performance is interfered with under extremely low and extremely high levels of arousal. Freeman's inverted U theory hypothesizes that as arousal increases so will performance until an optimal arousal level is reached. After the optimal level has been reached, any additional increases in arousal will result in a decrement in performance.

Hull's (1943) drive theory relates response strength to drive, habit tendencies activated in a situation are multiplied by the value of the total effective drive operating in that situation. In situations in which a dominant response tendency exists, an increase in drive would improve performance. However, in situations in which competing response tendencies exist an increase in drive strength would effect performance according to the strength of the correct response tendency relative to other incorrect tendencies. If the habit strength of the correct response is weak, an increase in drive would likely impair performance.

Speilberger's (1970, 1971) State-Trait Anxiety Theory delineates anxiety into two distinct anxiety concepts. State anxiety is a transitory emotional state characterized by tension, apprehension and heightened autonomic nervous system activity. Trait anxiety refers to a stable personality characteristic. According to this position, individuals high in trait anxiety exhibit heightened state anxiety elevations as compared to low trait anxiety individuals, because they react to a wider range of situations as dangerous or threatening. High trait anxiety individuals are also more likely to experience high state anxiety in situations related to a threat to self-esteem (Spence and Spence, 1966;
Speilberger, 1966). Speilberger believes that cognitive appraisal is an important factor in anxiety, as well as the aforementioned notion of self-esteem (or self-concept).

High levels of state anxiety or prematch tension have demonstrated a negative effect on athletic performance (Wankel, 1977; Johnson, 1948). Despite these and similar results, deterioration of performance under high levels of anxiety has not been consistently confirmed by the research, especially with athletes (Martens, 1972). Mahoney (1977) suggests that cognitive strategies of coping with anxiety may be more significant than the absolute anxiety level. Mahoney and Avener (1977), for instance, found that although successful gymnasts had higher prematch anxiety, they lessened anxiety (via different cognitive strategies) immediately prior to performance. Howard and Reardon (1978) found that cognitive strategies designed to reduce anxiety not only reduced anxiety, but also enhanced athletic performance.

The second question posed earlier was what psychological techniques can best facilitate performance? This question has already been partly answered. Cognitive restructuring techniques have been mentioned as facilitating self-concept, reducing anxiety and increasing performance. A second psychological technique which has been extensively used to facilitate performance is hypnosis. For instance, Johnson and Kramer (1961) used post-hypnotic suggestions to increase barbell presses to exhaustion. Cognitive rehearsal via hypnosis (Garver, 1977) has been used to facilitate performance and formation of neural pathways. Modification of anxiety via hypnosis and relaxation techniques (Narcuse, 1965) has also been employed. Numerous other studies have been reported employing hypnotic techniques to improve performance. However, the
majority of these studies do not provide a comprehensive approach to the facilitation of performance, but have tended to deal with isolated phenomena. Furthermore, many of the available techniques have not been researched systematically on a wide scale basis. The outstanding exception to this is Narcuse's (1965) work with Japanese Olympic athletes. Hypnosis, progressive relaxation, autogenic training, encouragement and counseling were combined into a comprehensive approach. 

A comprehensive approach to the facilitation of performance may be optimally successful if it attends to the modification of self-concept, anxiety, and performance. Both cognitive restructuring techniques and hypnosis have shown promise in modifying these variables. The psychotherapeutic package, Rational Stage Directed Hypnotherapy, (Tosi, 1974; Tosi and Marzella, 1975) is a cognitive-experiential therapy utilizing hypnosis and hypnotic imagery and has already demonstrated effectiveness in modifying various clinical and nonclinical disorders (see literature review). This approach will be modified for application to the current research problem of facilitating neuro-muscular performance, modifying self-concept and reducing anxiety. Rich cognitive rehearsal will be used to facilitate neural pathways and performance. Vivid hypnotic imagery will also be used in an attempt to modify physiological processes to induce rapid muscular growth in the research sample of athletes. Also, due to the length and nature of the present research, the use of therapy stages (an important aspect of Rational Stage Directed Hypnotherapy with clinical populations) will be de-emphasized. The awareness and exploration stages will be the only stages utilized in this study (refer to section on Rational Stage Directed Hypnotherapy in the literature review).
PURPOSE

The purpose of this study is to examine the effects of a modified Rational Stage Directed Hypnotherapy (RSDH), hypnosis only (HO), and cognitive restructuring only (CR) on neuro-muscular performance, self-concept modification and anxiety reduction. The major research question is whether the application of RSDH, HO, and CR can significantly improve neuro-muscular performance as measured by a standardized prone barbell press, significantly improve self-concept as measured by the Tennessee Self-Concept Scale (Fitts, 1965), significantly reduce anxiety as measured by the State-Trait Anxiety Inventory (Speilberger, 1970), and increase muscular growth as measured by a dominant arm measurement and chest measurement. A subquestion is the correlation between reported vividness of hypnotic imagery and measured muscular growth.

HYPOTHESES

The Hypotheses stated are:

HO: Means representing neuro-muscular performance as measured by a standardized prone barbell press, self-concept as measured by the Tennessee Self-Concept Scale, anxiety as measured by the State-Trait Anxiety Inventory, and muscular growth as measured by a dominant arm measurement and chest measurement, from groups of subjects defined in terms of various treatments RSDH, HO, CR, and Control will not differ significantly across the pre, post I and post II measurements.

HI: Means representing neuro-muscular performance as measured by a standardized prone barbell press, self-concept as measured by the Tennessee Self-Concept Scale, anxiety as measured by the State-Trait Anxiety Inventory, and muscular growth as measured by a dominant arm measurement and chest measurement, will be statistically superior for the RSDH group as compared to the HO, CR, and Control groups across the pre, post I and post II measurements. Furthermore, the effects of CR and HO will be superior to the control condition.
NEED FOR THE STUDY

Exploration of the enhancement of human performance can have numerous positive implications for a large cross section of our population, with both clinical and nonclinical populations benefiting. Indeed, strategies such as behavioral modification, hypnosis, cognitive restructuring, meditation and relaxation have all been mentioned or used as facilitators of performance in various populations.

The enhancement of human performance in the normal population is now being recognized as a legitimate pursuit of the psychological community (Mahoney, 1977). Indeed, nonclinical populations (especially these measuring neuro-muscular performance in athletic settings) offer many parallels to the demands and stresses of everyday life (Mahoney, 1977). It seems obvious that the same factors which influence performance in these instances (anxiety, self-concept negative expectation, concentration-distraction, etc.) are operational in the performance of numerous everyday tasks in both clinical and nonclinical settings (Howard and Reardon, 1978). A secondary consideration for working within an athletic performance setting is the observation that physical fitness may facilitate psychological adjustment (Harris, 1973; Brown, 1979).

Self-concept and anxiety have both been identified as psychological variables effecting performance. Speilberger (1971) has found that maladaptive levels of anxiety can negatively effect performance. Mahoney (1977) believes that it is not the absolute level of anxiety that effects performance, but the cognitive strategy employed to deal with the anxiety present. Both Speilberger (1971) and Mahoney (1977) believe that anxiety is related to a perception of specific events (or in other words a cognitive variable). Since the self-concept can be conceptual-
ized as cognitive self-referring statements (Raimy, 1977) and "the frame of reference through which the individual interacts with his world" (Fitts, 1972) a close association between self-concept and anxiety might be assumed (improved self-concept may lead to decreased anxiety: Reardon, 1976; Tosi, Howard and Gwynne, 1977).

Indeed Fitts (1972) in his monograph The Self Concept and Performance states "other things being equal optimal performance in most instances will increase in likelihood as the person's self-concept approaches the optimal picture." However, changes in self-concept are difficult to bring about and to measure. Fitts (1972) again comments "... a person's self-concept, his self-image developed over a lifetime does not change very readily. Approaches, treatments, methods and experiences which generate dramatic self-concept change are few and far between."

Raimy (1975) believes that most therapeutic approaches (T. A. Gestalt, behavioral, cognitive, psychoanalytic, etc.) when successful modify cognitions about the self (or self-concept). Raimy (1943) first stated that one of the most important problems in personality research is whether self-concept change does occur in therapy, and what variables account for the change. Reardon (1976) in his doctoral dissertation on self-concept change notes that many of theses questions first posed by Raimy (1943), more recently by Raimy again (1971, 1975), and by Fitts (1972) have not been answered. The question, "Can self-concept be positively altered by short term psychotherapeutic intervention?" was partially answered "yes" by the Reardon (1976) study. In a population of delinquent female adolescents, self-concept was positively altered and negative emotional states were successfully reduced.
The present research question becomes modified, "Can a short term psychotherapeutic intervention modify indices of several levels of human functioning (self-concept, anxiety, muscular growth) as well as facilitate neuro-muscular performance?" This is based on Tosi's (1974) notion of modifying and collecting data on several levels of human functioning. Long term increases in neuro-muscular performance involve many variables. Improved self-concept, reduced anxiety, heightened physiological control, and of course improved performance are all goals of such an approach.

This becomes an intriguing question, "Is there a psychotherapeutic approach that can attend to these complex variables and effect change over time despite a short intervention period?" If so, this approach would certainly prove useful in a number of contexts.

The approach to be investigated is a modification of Rational Stage Directed Hypnotherapy (RSDH) (Tosi, 1974; Tosi and Marzella, 1975). RSDH seems especially applicable to the present problem because it is designed to teach cognitive modification skills and anxiety management, can be modified to provide training in the control of physiological processes and can provide cognitive rehearsal of performance via hypnotic imagery.

The purpose of this study is to investigate whether RSDH, hypnosis only and cognitive restructuring only procedures can improve self-concept, reduce anxiety, improve the control of specific physiological processes (muscular growth) and facilitate neuro-muscular performance over a brief period of time (4 sessions).
LIMITATIONS OF THE STUDY

The study is limited to a sample of thirty-two male college students who are members of a campus weightlifting club and who volunteered for participation in the study. In no way is this sample representative of a cross section of male college students or male athletes.

Another limitation is the number of therapy sessions (4) which were conducted as well as the length of time between post test I and the follow-up, post test II (3 weeks).

A statistical limitation lies in the number of people randomly assigned to each cell (8) and the total N of thirty-two (32).

One of the criteria measures, a prone barbell press, could have been effected by the variable of training technique or time spent in training despite instructions to the subjects to follow a standardized training routine. This routine was monitored by the subjects and not the experimenter due to the number of subjects involved.

A final limitation lies in the criteria measure representative of physiological change (size increases in dominant arm and chest). Although this measure is a true representation of size change, it is unclear whether changes can be attributed to gains in muscle or simply overall weight gain.

DEFINITION OF TERMS

The following definitions are presented for a more thorough understanding of terms used throughout the study:
Self-Concept:

Self-concept is operationalized as that which is measured by the total self-concept score as reported by the Tennessee Self Concept Scale. Elevated scores will be considered to reflect an improved self-concept and decreases will reflect a deterioration of self-concept.

Anxiety:

Anxiety is operationalized as that which is measured by the State-Trait Anxiety Inventory. Both state and trait anxiety will be considered and reduction on each scale will be representative of reduced anxiety in the respective categories (state and trait anxiety). State anxiety is seen as a transitory emotional state or condition that fluctuates over time, varies in intensity and characterized by consciously perceived feelings of tension and heightened autonomic nervous activity. Trait anxiety refers to relatively stable individual differences between people in the tendency to respond to situations perceived as threatening with elevations in state anxiety (Speilberger, 1970).

Prone Barbell Press:

While lying on the back (on a bench in which the feet are touching the floor), the individual lowers a barbell from arm's length until the weight touches the chest and then extends the weight upward until it is again at arms length. During performance of the lift, the feet must remain flat on the floor, the buttocks must keep constant contact with the bench and the bar must not bounce on the chest or be extended unevenly.

Cognitive Restructuring:

A therapeutic approach in which irrational ideas are identified, next the individual is confronted and finally re-educated in more rational thinking. This approach assumes high cognitive control over other processes and emphasizes that negative emotional states are associated with irrational thought processes (Ellis, 1962) or cognitive distortions (Beck, 1967).

Rational:

Rationality is a non-static concept based on logically correct thinking relative to a give set of data or facts. Maulsby (1971) identified the following criteria of rationality:

1. The behavioral processes engaged in are based on reality.

2. The behavioral processes engaged in minimize personal stress.
3. The behavioral processes engaged in minimize environmental stress.

4. The behavior engaged in is life preserving.

5. The behavior engaged in is goal enhancing.

**Hypnosis:**

The individual is directed to obtain a heightened level of relaxation, attention and awareness via an induction process. The current induction process involves:

a) deep breathing,

b) cognitive muscle relaxation,

c) counting for deepening, and

d) imagining a pleasant scene.

**Rational Stage Directed Hypnotherapy:**

A stage-oriented, cognitive-experiential, systematic psychotherapy which uses hypnosis and hypnotic imagery to recondition negative cognitive/affective/physiological/behavioral states. Based on the principle of high cognitive control over other processes, cognitive restructuring skills are developed, implemented and reinforced within developmental growth stages during hypnosis.

**Cognitive Rehearsal and Imagery:**

The ability to cognitively imagine, mentally picture and vicariously rehearse and experience oneself thinking, acting and emitting in various real or hypothetical situations.
CHAPTER II

REVIEW OF RELATED LITERATURE

The major question which this study focuses upon is the efficaciouslyness of a modified Rational Stage Directed Hypnotherapy (and hypnosis only and cognitive restructuring only) on modifying self-concept, reducing anxiety, inducing muscle growth and improving neuro-muscular performance. A review of pertinent literature contained in this chapter will include: 1) self-concept and performance; 2) the measurement of self-concept; 3) anxiety and performance; 4) the measurement of anxiety; 5) hypnosis and performance; 6) cognitive therapy; 7) Rational Stage Directed Hypnotherapy.

SELF-CONCEPT AND PERFORMANCE

Historically the self-concept (or statements about the self) has been addressed as an important causal factor in human behavior. Few therapists have postulated an organizing superstructure of self-concept, although it has been an implicit theme in the history of psychology (Rainy, 1975). The evolution of self-concept theory seemed to gradually stress the importance of self-referring statements over statements about others/things/situations. The current conceptions of self-concept have basically evolved from cognitive approaches to human behavior (Rainy, 1975). Some early philosophical postions will be reviewed below as well as more current psychological perspectives on self-concept.
A discussion of self-concept most likely begins with William James (1890, 1910). James (1910) alluded to the complex nature of self-concept by describing the Empirical Self (the self that is known) and its constituent parts: the material me (body); the social me; and, the spiritual me. James also spoke about conflict between the real and the ideal self and pointed out the disturbance caused by unrealistically high self-standards. Below is an excerpt from his writing:

"So we have the paradox of a man shamed to death because he is only the second pugilist or second oarsman in the world. That he is able to beat the whole population of the globe minus one is nothing; he has pitted himself to beat that one; and as long as he doesn't do that nothing else counts. He is to his own regard as if he were not... Yonger puny fellow, however, whom everyone can beat, suffers no chagrin about it for he has long ago abandoned the attempt to carry that line.... So our self-feeling in this world depends entirely on what we back ourselves to be and do." (1910, p. 184).

Various Neo-Freudians as well as other analytically oriented theorists also addressed themselves vaguely to cognition and self-concept. Janet (1907) believed that fixed ideas were causal factors in mental disturbance. DuBois (1909) spoke of "incorrect ideas," while Breuer (1957) referred to "unconscious pathogenic ideas."

Horney (1950) spoke of a clash between the real and "idealized self-image." Perhaps the first elaborate cognitive perspective on self-esteem was presented by Alfred Adler (1924, 1927, 1933, 1958). Adler takes a subjectivistic (phenomenological) approach in which perceptions and interpretations of events are critical determiners of emotion and behavior. Adler (1933) stated, "In a word I am convinced that man's behavior springs from his ideas." Behavior can be understood if one determines how the individual "comes to know" and represent the world around him.
A central concept in the Adlerian position is the "strivings for superiority." Due to excessive inferiority feelings the individual may engage in self-defeating behavior. Abnormally high feelings of inferiority may lead to disordered behavior. The individual may become self-occupied and lose social interest or he may set even higher standards and cause increased inferiority feelings. Aggression (depreciation of others, projection) and avoidance (moving backwards, hesitation) may be other coping mechanisms. Inferiority feelings of unusual intensity are caused by:

1) excessive pampering
2) neglect
3) organ inferiority

Several developmental factors can also influence inferiority feelings:

1) parental behavior
2) birth order
3) school situation
4) later problems of life

The perceptual and thought responses to events are "fictions," cognitive maps or portraits of the world. Via these cognitive interpretations behavior becomes organized around a common goal, overcoming inferiority. The habitual behavior pattern, which includes all aspects of the person's behavior is called the "life style." Adler considered the life style a complex, but unifying psychological system while Dreikurs (1961), a Neo-Adlerian refers to the life style as the individual's self-concept. The movement of behavior can be described as follows:

self-evaluation of inferiority → feelings of inferiority → strivings for superiority
All individuals suffer from inferiority feelings, but more well adjusted people are able to overcome them in a productive manner. Adler believes that it is the overcoming of this inferiority that civilizations are built on.

Adler's elaborate conceptions about self-esteem and human behavior are highlighted by his own statement:

"An individual with a mistaken opinion of himself and the world, that is with mistaken goals and a mistaken style of life, will revert to various forms of abnormal behavior aimed at safeguarding his opinion of himself when confronted with situations which he feels he cannot meet successfully, due to his mistaken views and the resulting inadequate preparation." (Ansbacher and Ansbacher, 1956).

Perhaps Raimy (1943) was the first to exclusively address self-concept as an important psychological construct. In fact, Combs labeled Raimy's doctoral dissertation entitled The Self-Concept as a Factor in Counseling and Personality Organization as "the original definitive statement of the self-concept in American psychology (Raimy, 1971). In his original work Raimy (1943) examined the relationship between negative and positive self-referring statements and pathology. Higher functioning individuals tend to have a propensity of positive self-referring statements. In his later work Misunderstanding of the Self, (Raimy, 1975) makes his definitive statement on self-concept in what he calls the "misconception hypothesis:"

"If these ideas or conceptions of a client or patient which are relevant to his psychological problems can be changed in the direction of greater accuracy where his reality is concerned, his maladjustments are likely to be eliminated."
Raimy states that reality in the above definition refers to the "individual's reality," not "objective reality." The individual's reality consists of all the information or knowledge he is aware of. However, the individual "may ignore aspects of his knowledge" and "by twisting information found in repression, suppression and other defensive mechanisms," he may distort his own reality.

Although misconceptions about others are important, Raimy believes that misconceptions about the self are central to maladjustment. "The self-concept (self-image, or empirical self) not only organizes and guides behavior, but also requires significant modification for successful psychotherapy (Raimy, 1943, 1948)."

Raimy goes on to say that despite semantic differences inherent in different psychotherapeutic approaches, the modification of self-concept (seen as a cognitive process) is central to all successful psychotherapy.

Raimy (1975) states that Ellis (1951, 1961, 1963, 1969, 1971) is perhaps the best-known current proponent of the misconception hypothesis (self-concept). Ellis is the founder of Rational Emotive Therapy (RET). RET attacks "irrational ideas" about the self and the world that are associated with negative affect and offers in their place rational alternatives. Ellis's model stresses that thoughts, and not situations, are responsible for negative affective responses.

Ellis (1962) lists 10 or 11 common irrational beliefs people hold. By paraphrasing these beliefs in the first person, Raimy points out that RET actually modifies self-concept. Ellis views this process as entirely cognitive, in which the individual learns a new means of self-control. He (1970) attacks notions about rating one's worth or lack of worth as not being empirically verifiable. By adhering to external ratings of
worth, the individual is more likely to lose sight of his own personal goals and is also likely to experience negative emotional and behavioral responses.

Social learning theorists (Rotter, 1954; Bandura, 1969) have also alluded to self-concept. Rotter (1954) emphasized erroneous expectations and talked about locus of control. Well adjusted individuals tend to demonstrate an internal locus of control (similar to a strong sense of self or positive self-concept), while neurotics and psychotics adhere to an external locus of control (Lefcoul, 1966).

Self-concept can also be viewed from a behavioral perspective. Bandura (1969) quoting Marston (1965) describes a negative self-concept as "...a relatively high incidence of positive self-reinforcement." Although external factors are important determiners of behavior (via stimulus discrimination and reinforcement) self-generated or internal consequences may have more regulatory power (Bandura, 1974). These internal regulatory mechanisms are developed through modeling, via the observation of peer's behavior, rewards and contingencies. The individual may, however, develop "fictitious contingencies" and "fantasied reinforcements" (Bandura, 1969). It is the therapists task to bring these errors to awareness and attempt to modify them in a more realistic direction.

Bandura (1977) has also developed a theory of self-efficacy outlined below:

"Expectations of personal mastery affect both initiation and persistence of coping behavior. The strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations.... Not only can perceived self-efficacy have directive influence on choice of activities and settings, but,
through expectations of eventual success, it can affect coping efforts once they are initiated. Efficacy expectations determine how much effort people will expend and how long they will persist in the fact of obstacles and aversive experiences. The stronger the perceived self-efficacy, the more active the efforts (pp. 193-194)." Although Bandura's self-efficacy theory may represent a specific variable which changes across situations, Mahoney (1977) believes that a more global trait analogue to "competence" or "self-confidence" may better explain overall performance optimism.

Combs and Snygg (1949, 1959), like Raimy, present an organized theory of self-concept. The self is an object in the individuals perceptual field; this includes everything that is experienced as "me" (the phenomenal self). At the center or core of this phenomenal self is the self-concept, composed of the most significant and stable perceptions developed by the individual to symbolize himself. Combs and Snygg further believe that human motivation is guided by a need to maintain and enhance the self as perceived.

Inadequate behavior is caused by inadequate differentiation of the phenomenal self. This lack of differentiation is caused by threat, anything that the individual regards as inconsistent with his own perceptions of himself. In response to threat, the individual narrows his perceptual field making certain aspects of reality unaware to him. This lays the foundation for inadequate differentiations. It becomes the task of therapy to explore the psychological field (particularly self-concept) in the absence of threat.

Several humanists have addressed self-concept. Rogers (1951, 1961, 1969) believes that the fully-functioning individual utilizes his total
organism in all spheres of activity. Maslow (1968) speaks of the self-actualized individual who is better able to realize his full potential and to function in an effective creative manner. Seeman (1958) believes that individuals who possess personality integration in each of the organisms subsystems -- perceptual, cognitive, and physiological are able to function more effectively.

Probably the current leader in the research and measurement of self-concept is Fitts (1954, 1965, 1972). Fitts general hypothesis is as follows:

"The more optimal the total self-concept, the more effective will be the performance" and "between persons of equal ability the one with the more optimal, or the healthier, self-concept will generally function better."

Fitts sees self-concept as being related to performance in two ways: 1) indirectly as an index of self-actualization and 2) directly in its own light. Commenting on his second point, Fitts says, "The person who has a clear, consistent, positive and realistic self-concept will generally behave in healthy, confident, constructive and effective ways. Such persons are more secure, confident, and self-respecting; they have less to prove to others; they are less threatened by difficult tasks, people and situations; they relate to and work with others more comfortably and effectively, and their perceptions of the world of reality are less likely to be distorted." (Fitts, 1972).

Fitts (1972) warns that self-concept is not a simple, single entity, but a complex structure with many facets and dimensions. He identifies eight subselves of self-concept organized into the following manner:
Internal References

Identity - (What he is)
Self-Satisfaction - (How he accepts himself)
Behavior - (How he acts)

External References

Physical Self
Moral - Ethical Self
Personal Self
Family Self
Social Self

These eight subselves are all represented as scales on the instrument Fitts (1965) developed to measure self-concept, the Tennessee Self-Concept Scale. These subselves are summed to yield a total positive score representing the entire self-concept. Measures of variability, conflict, self-criticism, and distribution are also yielded by this instrument.

What does the current research have to say about self-concept and performance, specifically athletic performance? Mahoney and Avener (1977) interviewed the finalists for the 1976 U. S. Mens Olympic team in gymnastics. Among the 12 finalists, performance was moderately correlated with pre-meet self-confidence. Those who reported occasional doubts about their ability tended to perform more poorly during the qualifying meet.

One study suggests that perceived ability may influence actual performance. Nelson and Furst (1972) tested subjects for arm strength and asked them to rate themselves relative to their peers. Subjects were then paired off so that one individual in the pair was clearly superior.
in terms of arm strength. However, both members of the pair thought that the weaker members of the pair was the strongest. Twelve pairs wrestled and in ten instances the expectation factor won over the strength factor. In other words, the weaker subject (who both thought was the strongest) won 83% of the time.

Most researchers who have empirically investigated the relationship between self-concept and performance agree that there exists a positive relationship. Fitts (1972) presents considerable research in this area and concludes that "an optimal self-concept is closely related to effective behavioral performance." Studies by Reardon (1976, 1978) and Howard and Reardon (1978) are in support of this position.

THE MEASUREMENT OF THE SELF-CONCEPT

As the notion of self-concept has become increasingly important in the psychological literature, a growing number of instruments have surfaced to measure self-concept. Wylie (1961) identified nearly 200 instruments up to 1960, with numerous others developed since that time.

These instruments have measured a variety of different components or variables of self-concept. Mason's (1954) instrument looked at whether self-concept contained positive or negative affect. Brownfain (1956) measured the consistency or stability of self-concept overtime. Laforge and Suczek (1955) originated the Interpersonal Check List which generated three scores: (A) a self-description score, (B) an ideal-self score, (C) a measure of "self-acceptance" which is derived from discrepancies between the "self" and "ideal-self." Numerous studies have examined the relationship between "self" versus "ideal-self" (Bailey, 1968; Friend, 1969). Other studies have examined self-concept
in terms of self-acceptance (Fey, 1957), whether the self-concept was realistic (Worchel, 1957), or have dealt with the physical self-concept (Fisher and Abercrombie, 1959). The Body Cathexis Scale (Secord and Jenraed, 1953) was designed to measure satisfaction with various body parts.

Numerous studies have used the Q-sort technique which correlates self-concept with other variables (Fontana, 1966; Smith, 1972; Sheer, 1958). Some standard psychological instruments yield scores relating to self-concept. For instance, the 16 Personality Factor Questionnaire (Cattell and Eber, 1962) yields an ego-strength score and the California Psychological Inventory (Gough, 1964) yields a self-acceptance score. Vincent (1968) explored the statistical relationship between several self-concept factors. She found that there is consistency in construct definition and validity for security, self-satisfaction, confident adequacy as measured by the Security-Insecurity Inventory, Tennessee Self-Concept Scale and 16 Personality Factor Questionnaire.

As with most psychological instruments, the self-concept tests present a number of problems. Fitts (1971) states that the population to which these tests can be applied are often limited by the difficulty of items, vocabulary used, and the mechanics of the answer sheet. Wylie (1974) raised the issue of socially desirable responding on such tests. Cronbach (1970) states that questions are often ambiguous and the wording can be interpreted several ways. Reliability and validity of such instruments are also of central importance. Fitts (1965) developed the Tennessee Self-Concept Scale (TSCS) in an effort to deal with some of the above issues. The TSCS is the instrument chosen to measure self-concept in this study and a complete description of the scale will be
provided in Chapter III. It should be noted that this instrument like other paper-pencil types is limited according to reading level, mechanical considerations, etc.

The TSCS manual (Fitts, 1965) provides information on the description, computation and interpretation of scales. Reliability data, validity data, and intercorrelations of scores are also provided. The reliability estimate for the TSCS ranges from .60 (Row Total V) to .92 (Total P, GM), based on test-retest data from 60 college students over a two-week period. The total P score reflects the individual's overall perception of self-esteem. Scores on 90 items of the TSCS are summed to obtain the total P score, with higher scores reflecting high levels of self-esteem. Nunnelly (1968) reported a reliability coefficient of .91 and standard error of measurement of 3.30 for total P scores. The Kuder-Richardson split halves technique was used to obtain these results. Fitts (1965) reported numerous studies that indicated no change in self-concept over time, which also seems to lend indirect evidence to the reliability of the TSCS. Wylie (1974) points out that studies on the reliability of the TSCS are largely limited to the normal population. He points out that the mechanics of the test "could easily open the way to clerical errors especially in younger, disturbed and less able groups." Crites (1965) states that although the studies on reliability are minimal on the TSCS, they are generally favorable.

A larger body of data exists concerning the validity of the TSCS. Information on 1) predictive validity, 2) concurrent validity, 3) content validity, 4) construct validity, will be provided below.

The predictive validity of the TSCS seems to be verified by a number of studies. Smith (1969) found that self-concept and participation
in a special preparatory course was predictive of persistence in a rehabilitation program with visually impaired college students. Faunce (1967) identified school dropouts by their TSCS scores. Frankel (1970) used the TSCS to evaluate paratroop trainees and were thereby able to reduce the dropout rate to one-eighth of the original. Tiffany et al (1970) predicted rehabilitative potential in vocational pursuits of ex-psychiatric patients with the TSCS.

Another type of validation, content validity, was met by the TSCS during the construction of the instrument. An item was retained only if there was unanimous agreement by a panel of seven clinical psychologists that the item was assigned to the proper or correct category.

A third type of validation, construct validity, was investigated by George (1970). Subjects initially rated their self-concepts on the TSCS and then were asked to answer according to how they would like to be. As a result, the Self-Criticism Score dropped one standard deviation and the Defensive Personality Score increased by one standard deviation. George points out that this provides evidence to the sensitivity of these two scales to defensive distortion. All P scores were higher and several Empirical Scales lowered (General Maladjustment, Psychopathic Deviancy, and Neurosis) on the rating of the ideal self. Bealmer (1965) found a strong correlation between the "Who am I test" and the total P on the TSCS, and Wayne (1963) reported a correlation of .68 between Izard's Self Rating Positive Affect Scale and the total P on the TSCS.

A final type of validation, concurrent validity is heavily supported by the current research. Johnston (1967) and Bailey (1967), have reported a negative correlation between dogmatism (measured by Rokeach's D Scale) and self-concept on the TSCS. Fitts (1965) found a
negative correlation between anxiety (measured by the Taylor Manifest Anxiety Scale) and Total P on the TSCS with female nursing students. Smith (1969) using the IPAT Anxiety Scale Questionnaire and Miller (1971) using the State-Trait Anxiety Inventory also found a similar negative relationship between anxiety and self-concept on the TSCS.

Several factorial studies involving the TSCS have been conducted. For instance, the TSCS, Edward's Personal Preference Schedule, Sixteen Personality Factor Questionnaire, Mach V Scale and Rokeach's Dogmatism Scale were correlated to determine if the various tests measured independent variables concerned with personality functioning (Vacchiano, Strauss, and Schiffman, 1968). Seven factors were discovered, all consisting of TSCS scales. Another factor analysis of the TSCS (Vacchiano and Strauss, 1968) seems to support the independence of five scales: 1) Physical Self; 2) Moral Self; 3) Personal Self; 4) Family Self; 5) Social Self.

TSCS profiles of normals have also been compared to other populations. Havener (1961), Wayne (1963) and Piety (1958) report substantial differences between clinical and nonclinical populations. The self-acceptance scores of paranoid schizophrenics were more favorable than normals (Izard, 1962). Alcoholics were found to have lower self-regard scores than normals (Gross and Adler, 1970).

As mentioned earlier, two TSCS scales (Self-Criticism (SC) and Defensive Personality (DP) seem to be sensitized to defensive distortion. For instance, Jones (1966) asked college students how they would fill out TSCS tests in four separate situations: 1) job setting; 2) research setting; 3) seeking help; 4) legal setting. He found that for the job situation the subjects' answers were approximately 50% untruthful. The
subjects were also untruthful in their response to the legal setting, 
more truthful, but not entirely in the research setting and almost 
totally truthful in the seeking help situation. These attempts at de-
ception were reflected in changes on the Self-Criticism and Defensive 
Personality Scale. Cotraim (1970) administered the TSCS for selection 
purposes (as opposed to a helping situation) and found a similar re-
response bias phenomena. Brassard (1964) and Tracy (1967) found differ-
ences in TSCS scores when subjects were asked to respond in the most 
socially desirable way. Changes in scores in reaction to this request 
were again reflected in the SC and DP Scales.

Despite numerous limitations in terms of both general psychologi-
cal testing and self-concept testing, the TSCS emerges as an instrument 
which generally meets the criteria of both reliability and validity. 
Leake (1970) comments on the TSCS after reviewing relevant self-concept 
literature:

"...its validity rests upon a broader base of positive findings 
than any other self-concept instrument presently available." Pound, 
Hansen and Putman (1977) conducted a study to determine if individual 
subscales or the total self-concept score contribute to the understand-
ing of self-concept. 323 adolescents were longitudinally studied over a 
three year period and the authors concluded that "as much information 
about self-concept can be obtained from the total Score as can be ex-
tracted from the combined scales." Therefore the total P will be used 
in this study as the measure of self-concept.
ANXIETY AND PERFORMANCE

Several hypotheses have been forwarded regarding the relationship between anxiety (often called arousal) and performance. Perhaps one of the earliest developed theory is that of Hull.

Hull's (1943) drive theory proposes that excitatory potential \( E \) which determines the strength of a given response \( R \) is a multiplicative function of total effective drive state \( D \) and habit strength \( H \). Total drive state results from the summation of all needs existing in the individual at a given time. The habit strength is determined by the characteristics of the task and the individual's prior experience in same or similar situations. The formula, \( R = f(E) = f(D \times H) \), is representative.

The Yerkes-Dodsen law proposes that performance is impaired by extremely low and extremely high levels of arousal. Optimal arousal level decreases with increasing task difficulty. Freeman's inverted "U" theory hypothesizes similarly that as arousal increases so will performance until an optimal arousal level has been reached. After that point any increases in arousal will result in a decrement in performance. This relationship is listed on the following page (Garver, 1977):
Speilberger's (1970, 1971) State-Trait Anxiety Theory is one of the most comprehensive and researched approaches to anxiety currently available. His important contribution is the delineation of two types of anxiety (State-Trait) as well as designing an instrument to measure the two constructs.

"State anxiety refers to the emotional reaction or response that is evoked in an individual who perceives a particular situation as personally dangerous or frightening for him, irrespective of the presence or absence of a real threat (objective danger)." Important in this definition is the cognitive appraisal of a situation as threatening. This is a position similar to the cognitive perspective of Ellis (1962), Beck (1967), Meichenbaum (1972) and others. Once the appraisal of danger is made, the individual "...will experience an immediate increase in the intensity of an unpleasant emotional state which is characterized by
consciously experienced feelings of tension and apprehension, and heightened autonomic nervous activity (e.g. increased heart rate, blood pressure, galvanic skin response.) State-anxiety is very similar to fear and requires a consideration of three different concepts and their relationship:

External danger → perception of danger → Emotional Reaction
(stress) (threat) (State-anxiety)

This relationship emphasizes that the objective stimulus characteristics, the subjective appraisal of the situation, and the emotional reaction one experiences in a situation perceived as dangerous are all important factors in state anxiety.

Trait anxiety on the other hand refers to a relatively stable personality trait which does not change in response to situational stress. Spielberger (1970) compares trait anxiety to what Atkinson (1964) calls motives and which Campbell (1963) refers to as "acquired behavioral dispositions." Motives are dispositions that remain latent until the cues of a situation activate them. Acquired behavioral dispositions involve memories, recollections etc. of past experience that predispose an individual both to view the world in a particular way and to manifest "object-consistent" response tendencies.

Spielberger (1971) proposes a developmental theory to account for individual differences in trait anxiety. He suggests that childhood experiences interact with hereditary factors to influence the development of trait anxiety. Parent-child relationships are especially important and experiences associated with punishment may be most significant. Spielberger believes that because self-depreciating attitudes are aroused in high trait anxiety individuals under circumstances character-
ized by failure or negative feedback, than these individuals received excessive criticism and negative appraisal from their parents.

The research indicates that individuals high in trait anxiety will exhibit state anxiety elevations more frequently than low trait anxiety individuals because they tend to perceive a wider range of situations as dangerous. High trait individuals tend to respond especially with high state anxiety to situations involving a threat to self-esteem. Thus high trait anxiety individuals tend to do more poorly than lower trait anxiety individuals on tasks involving failure or negative evaluation of performance.

Whether or not individuals differing in trait anxiety respond to a situation with state anxiety depends upon if a particular situation is perceived as dangerous or threatening (which is greatly influenced by a person's past experience). Spielberger qualifies this by saying that situations characterized by physical danger are not interpreted as differentially threatening by high and low trait anxiety individuals (again differential elevations occur with situations involving threats to self-esteem or personal adequacy).

Generally the research suggests that individuals high in state anxiety perform better on simple tasks, but poorer on difficult tasks than low state anxiety individuals (O'Neil, Hansen, Spielberger, 1969). Generally low state anxiety individuals perform better on more difficult tasks than their more anxious counterparts. Anxiety may facilitate performance on simpler tasks, but not on more difficult tasks according to these findings.

Wankel (1978) and Johnson (1948) have found that state anxiety or excessive prematch tension caused poor performances in competitive
athletic situations involving complex neuro-muscular performance. Morgan (1973) has also found that high anxious individuals misperceive the work load during exertion. This perceptual processing error in part may account for poorer neuro-muscular performance over time of highly anxious individuals.

Despite the above findings, performance deterioration under conditions of high anxiety has not held up consistently, particularly with athletes (Martens, 1972). Mahoney (1977) suggests that absolute levels of anxiety may be less informative than patterns of anxiety change and methods used by the athlete to cope with anxiety. This seems to be empirically verified by Epstein and Fenz (1962).

Mahoney and Avener (1977) found differences in the pattern of anxiety of gymnasts who made the U. S. Olympic team and those who did not make the Olympic team. Differences in anxiety prior to competition were minimal, but were in the direction of the better athletes being more anxious. During the most important parts of the actual competition, this trend was reversed. Not only was the anxiety level reduced in the better performers, but the cognitive strategy employed suggested that these athletes used their anxiety as a stimulus for improved performance. The less successful athletes, however, reacted to the anxiety with a near panic state of negative verbalizations and images.

Thus the absolute anxiety level may be less significant than the cognitive strategy employed to deal with the current situation and any accompanying anxiety. Cognitive coping strategies suggested by Ellis, Meichenbaum, Beck, Mahoney and Tosi are all designed for this purpose. The aforementioned study by Howard and Reardon (1978) provided several cognitive strategies for athletes to minimize anxiety states, but in-
crease or establish appropriate arousal states. This procedure reduced both state and trait anxiety suggesting that the learned strategy was employed not only to the athletes competitive situation, but also in his day-to-day interactions. A new set of positive self-verbalizations (increased self-concept) was also fostered.

THE MEASUREMENT OF ANXIETY

The present study uses the State-Trait Anxiety Inventory (Speilberger, 1970) as a measure of anxiety. Its design is based on three widely used anxiety scales: 1) The IPAT Anxiety Scale (Cattell and Scheier, 1963); 2) Taylor (1953) Manifest Anxiety Scale; 3) Welch (1956) Anxiety Scale. Despite the presence of such instruments which are widely used in both clinical and research settings, theorists have often disagreed as to the nature, origin and definition of anxiety.

Shedletsky and Endler (1974) reviewed the literature on anxiety and illustrate the inconsistencies present. Anxiety has been regarded as: 1) a conflict between energy systems of the brain experienced as an unpleasant affective state or condition (Freud, 1936), 2) a reaction to an internal or external source of danger that results in disequilibrium of the energy systems (Freud, 1936), 3) a maladaptive response to disruptive relationships with others (Sullivan, 1953), 4) a physiological state of arousal caused by stimulus conditions in the environment and interpreted by the individual (Schachter, 1964), 5) a learned drive that creates neurotic conflict and the reduction of (drive) which can reinforce the learning of new experiences (Dollard and Miller, 1950; Mowerer, 1953) and 6) a condition of apprehension precipitated by a threat to values or characteristics basic to the individual's personality (May, 1950).
Many of the initial instruments designed to measure anxiety were limited to the measurement of trait anxiety. Spielberger (1970) suggests that trait anxiety is similar to what Atkinson (1963) calls "motives." Atkinson defines motives as "dispositions that remain latent until the cues of a situation activate them." Spielberger also compared trait anxiety to what Campbell (1963) refers to as "acquired behavioral dispositions." Campbell refers to this as involving "residues of past experience that predispose an individual both to view the world in a particular way and to manifest 'object consistent' response tendencies." Finally, Spielberger defines trait anxiety as "individual differences in anxiety proneness."

Spielberger (1964) felt that an additional concept, state anxiety, needed to be added to the notion of anxiety measurement. Cattell and Scheir (1958) cite research which suggests that both state and trait anxiety are separate but related concepts. Spielberger (1970) sees state anxiety as a "transitory emotional state" which "varies in intensity and fluctuates over time." Consequently, he developed an instrument (State-Trait Anxiety Inventory, STAI) to measure trait and state anxiety. Extensive data on the development, reliability, validity, and research are provided in the STAI Manual (Spielberger, Gorsuch, Lushene, 1970). Test-retest reliability correlations for trait anxiety were relatively high, from .73 to .86. However, the correlations for state anxiety were relatively low, from .16 to .54. This low correlation for state anxiety was expected, because state anxiety should reflect the influence of different situational factors existing at test taking time. Measures of internal consistency (using
Alpha coefficient) yielded coefficients ranging from .86 to .92 for trait anxiety and .83 to .92 for state anxiety.

The concurrent validity of the STAI was established by comparing it with the IPAT Anxiety Scale, the Taylor Manifest Anxiety Scale, and the Zuckerman Affect Adjective Checklist. Correlations were generally high ranging from .50 to .82.

Evidence for the construct validity of the state anxiety scale is provided with a sample of 977 undergraduate college students. The students were first asked to answer the state scale with the standard conditions. Next the students were asked to respond as how they would feel immediately prior to taking an important final exam. The mean score in the exam condition was considerably higher than the mean in the standard condition. All items but one for males, and all items for females, significantly discriminated between these conditions.

Speilberger (1970) provides additional validity information on state anxiety in an experiment involving 197 undergraduate students. In the STAI state anxiety scales were administered under four varying conditions: 1) standard conditions, 2) following relaxation training, 3) while being given an I.Q. instrument, and 4) following a stressful movie. Scores were lowest in the relaxation condition and highest after the students viewed the stressful film. The standard condition and the I. Q. condition were reported to be the same for both males and females. The stressful film condition was more upsetting for females and the relaxation training reduced their state anxiety more. Speilberger hypotheses that women are either more emotionally liable than males and/or more willing to report their feelings.
Additional research on the STAI is available from the manual. It seems to be an adequate instrument for the measurement of anxiety and will be utilized for that purpose in this study.

HYPNOSIS AND PERFORMANCE

Since the late 1800's a number of experiments have explored the effects of hypnosis on various simple and complex neuro-muscular tasks. Some of the criterion tasks were performed during hypnosis while others were performed following post hypnotic suggestion in the waking state. A review of this literature will follow.

In one of the earliest studies reported by Hull (1933) and Reiger (1884) found substantial improvement in endurance, measured by ability to hold the arm out horizontally while hypnotized. Nicholsen (1920) found that hypnotized subjects out performed waking subjects in work capacity measured by an ergograph. Hadfield (1924) reported that individuals during the hypnotic state demonstrated increased grip strength as measured by a hand dynamometer. Young (1925, 1962) found no differences in hand dynamometer scores between hypnotic and waking states (several hundred measurements were conducted). Williams (1930) did not support Reiger's earlier findings and suggested that Nicholsen's findings were more conservative than first reported.

Eysenck (1941) found improvement during hypnosis on physical performance tasks. Roush (1951) performed one of the first well controlled studies. In the first part of her experiment, she found improvement on an arm dynamometer but none either on a hand dynamometer or on an endurance test. In the second part of her experiment she repeated the same tests but added instructions suggesting that the subjects would feel no
pain and would improve their performance. In the second part the sub-
jects improved on all three tests which she attributed to the no pain
instructions.

Russian investigators Nemtsova and Shatenshteyn (1936) were one of
the first experimenters to explore the relationship between attitude,
hypnosis and performance. First the investigators determined oxygen
consumption and depth on subjects carrying out measured work on a bicy-
cle ergometer or lifting weights against gravity. During trance the
subject was given the suggestion that he was doing heavy work when in
fact, it was light, and vice versa. Changes in oxygen consumption,
pulse rate, and chronaxia corresponded with the subject's belief rather
than with his actual physical state. Wells (1946) obtained similar re-
sults with the grip dynamometer, the subject's performance being disso-
ciated from his beliefs.

Mead and Rousch (1949) found significant increases in strength
during hypnosis with the arm dynamometer. No significant change was ob-
served in the endurance test. Post-hypnotic suggestions have reportedly
led to increase in confidence, aggressiveness, steadiness, and concen-
significantly increased endurance capacity during barbell presses to
exhaustion. Slotnick and London (1965) found significant increases in
endurance (maintenance of an arm in a horizontal position with a weight
attached) when hypnosis was combined with exhortative suggestions.

Despite this long line of successful treatment effects, several
other researchers found no significant effect of hypnosis upon endur-
ance. London and Fuhrer (1961), Levitt and Brady (1964), Johnson et al.
(1960), Johnson and Kramer (1960), Albert and Williams (1975) and Rousch (1951) found that hypnotic suggestions did not increase muscular performance.

Several other studies indicate that hypnosis without suggestion may cause a deterioration of performance. Evans and Orne (1965) and Mierke reported these findings which also suggested that hypnotic induction focusing on suggestions of relaxation may produce a mental set antagonistic to that needed for maximal performance on an endurance task.

Post-hypnotic suggestions of fatigue have been shown to cause a significant decrement in muscular endurance. Johnson and Kramer (1960), Morgan (1972) and Albert and Williams (1975) have all observed this phenomena.

The literature listed above does not seem to support or disprove the contention that hypnosis can increase muscular strength or endurance. Morgan (1972) has indicated that much of the contradictory findings may reflect design or statistical flaws. However, Orne (1959) provides an alternative explanation for the aforementioned effects. He believes that increases in strength or endurance under hypnosis might be a function of increased motivation rather than the hypnotic state. This concept was initially forwarded by Hull (1932). Orne's experiment involved comparing the ability of male S's to hold a weight in the hand in the hypnotic state and the waking state. Prior to the performance in the waking state, each S was told that females had succeeded in holding the weight for a length of time which was the same as the S's performance under hypnosis. The S was then told that males were expected to achieve a half-minute more. With this contrived motivation seven of
nine S's performed better in the waking state. Levitt and Brady (1964) also verified Orne's contention. Performance in hypnosis does not surpass that in the motivated waking state. One might conclude from this position that individuals who are highly susceptible to hypnosis are more motivated to perform even before being hypnotized than S's who are insusceptible to hypnosis. However, London and Fuhrer (1961) and Rosenhan and London (1963) report that the waking base level performance of S's who are insusceptible to hypnosis is higher than the waking base level of highly susceptible S's on tasks of muscular strength, endurance and coordination. Of course, Evans and Orne (1965) could not replicate this study and the contradiction of findings is once again upheld.

In more recent times, the application of hypnosis to neuro-muscular performance has taken a more complex and comprehensive course. Naruse (1963, 1965) used hypnosis in conjunction with autogenic training and progressive relaxation to relieve anxiety associated with performance in the 1960 Olympics in 125 Japanese athletes. General psychological counseling, mental rehearsal, and counterconditioning of anxiety were all parts of this comprehensive program. Gymnasts, weight lifters, volleyball and baseball athletes were among the individuals receiving the treatment. Bankon (1973) also obtained similar results. Kroger (1977) reports that the Soviets have developed even more elaborate procedures with optimal success. Hypnosis and autogenic training are central features of the Soviet program.

Garver (1977) reports the use of hypnosis in a framework of cognitive rehearsal and arousal control to enhance human performance. The use of cognitive or covert rehearsal was an attempt to facilitate neural
pathways (of the desired performance). Sage (1971) has identified the
two most popular theories describing this phenomena. The neuro-muscular
theory hypothesizes that mental practice activates neuro-muscular units
involved in a specific task. Although no actual movements can be ob­served, electromyographical studies have measured action currents in the
muscle groups used for movement in covert rehearsal. A neurophysiologi­cal theory emphasizes the activation of specific neural components of
the brain involved in the direction of the movement being rehearsed.
The motor component however is not involved. Sage makes the analogy of
"the automobile with its engine running but the gears in neutral." The
assumption is that there is a modification of the neural circuits which
will facilitate subsequent performance.

Garver has found that performance can be modified via mental image­
ry and while under hypnosis through the use of time distortion and accu­rate description of the neuro-muscular task. Garver emphasizes that the
hypnotist's description of the neuro-muscular task should be accurate in
every detail since the hypnotic suggestion is quite specifically re­ceived.

Garver also stresses the establishment of the proper arousal level
for the specific task. More complex tasks are often accomplished better
with lower levels of arousal, while simple tasks are often performed
better under higher levels of arousal. He establishes an arousal
scale, based on a one to ten dimension. Zero is established as the low­
est possible arousal level (similar to deeply relaxed state). The sub­ject is then taken numerically through the rest of the scale experienc­ing the sensations associated with each subsequent level. Once the
subject during hypnosis is able to associate the appropriate arousal level with the numerical figure on the scale, he is taken up and down the scale with the numerical designator only. Next the subject is given a post-hypnotic suggestion that he can recognize where he is on the arousal scale during the waking state. Using five as his own personal level of optimal arousal the individual monitors the level to see if he is high or low. The individual can then change his level by telling himself, "I must get calm and relaxed. I'm at seven, now I'm lowering it to six, five etc." Garver believes that arousal control is simply a matter of autonomic nervous system conditioning.

Howard and Reardon (1978) utilized a cognitive-experiential approach with hypnosis to modify neuro-muscular performances. The cognitive perspective was based on Ellis's (1962) Rational Emotive Therapy, later revised by Tosi (1974). One of their basic premises was that the individual can utilize high cognitive control over emotional, physiological and behavioral states to improve performance. That is, he can learn to modify negative attitudinal states associated with anxiety, lack of concentration, over arousal etc. during his performance. He can also learn cognitive control over other facets of his life to improve general psychological health and well-being. Fitts (1972) has found that performance improves with self-concept. Thus the approach was designed to attend to both "state" and "trait" factors of the individual. The entire intervention involved the following:

1. Presentation of cognitive perspective - didactic - experiential educational approach with systematic written homework (Tosi, 1974) to facilitate awareness and exploration of high cognitive
control (and not situations) over emotional, physiological and behavioral tendencies.

2. Introduction to hypnosis.

3. Pseudo-desensitization plus restructuring during the hypnotic state. This was a modified version of desensitization (Wolpe, 1958) combined with cognitive restructuring. A pleasant scene was utilized prior to approach to the competition (an anxiety producing situation). However if anxiety occurred, unlike desensitization the process continued with the individual directed to use cognitive restructuring to lessen the anxiety. If this failed, the pleasant scene could be reintroduced.

4. Modification and differentiation of anxiety and arousal during the hypnotic state. Through hypnosis the individual learned distinctions between anxiety and arousal.

5. Cognitive rehearsal of the athletic event during the hypnotic state -- similar to Garver's (1977) mental rehearsal.

6. Use of post-hypnotic suggestions. Post hypnotic suggestions were used to facilitate generalization and transfer of effects to the real life setting.

The procedure was applied to competitive weight lifters. It resulted in improved self-concept, lowered state-trait anxiety and improved performance as measured by pre-post lifting measured in actual competitive situations.

As may be noted above, imaginal rehearsal is an important part of many of the hypnotic procedures utilized. For instance, Suinn (1972) used imagery-rehearsal to enable ski racers to correct errors through
the introduction of slow-motion instruction. They were able to slow down the rate of their movements while still retaining the vividness and realistic features of the imagery. The racers were exposed first to a standard group desensitization procedure to alleviate any tension or anxiety associated with their performance.

A large number of experimental studies using mental practice with athletes (Corbin, 1972; Richardson, 1967) are reported in the literature. Several factors may be important in determining how effective mental practice is in enhancing subsequent performance. The individual's familiarity with the neuro-muscular task imagined seems important (Mahoney, 1977). Mental rehearsal also seems most effective when interspersed with actual practice of the task (Landers, 1975).

Corbin (1972) suggests that the individual's ability to successfully control the images practiced may also be an important factor. The individual who continually sees himself performing the task incorrectly will probably not benefit positively from such practice. Another factor discovered by Mahoney and Avener (1977) is the point of reference of imagery. They found that successful performers (Olympic gymnasts) used internal (phenomenological) imagery as opposed to external (third person) imagery.

In conclusion, a number of hypnotic strategies often utilizing forms of mental imagery, have shown positive results on performance. The findings are not conclusive, however, as several studies indicated negative or minimal effects. What seems to be lacking in the literature are more systematic approaches which have been empirically investigated in a rigorous manner.
Cognitive therapy has rich historical origins. These will be discussed below as well as current trends, research and techniques.

The ancient stoic philosophers, Zero of Citium, Marcus Aurelius and Epictetus, first supported a position similar to RET. This is best represented by Epictetus' remark "Men are disturbed not by things, but by the views they take of them." Immanuel Kant, Descartes, and Benedict De Espinoza held a similar position. Descartes (1600's) began his philosophical argument with "I think, therefore I am" and asserted the primacy of existence. Descartes is often considered the "Father of Existentialism." Spinoza (1600's) declared that things did not disturb him, save the effect they had on the mind. Modern Existential philosophy supports this position and stresses that the individual should not engage in ratings of self-worth. Sartre (1957) declared "Existence precedes essence," man is free to choose his destiny. Emotions are motivated by conscious or unconscious drives and are goal directed (Sartre, 1948).

Freud (1900, 1901) popularized the concept that psychic structures were causal factors of human behavior. Adler (1933) declared "In a word I am convinced that man's behavior springs from his idea. Janet (1907) talked about "fixed ideas;" DuBois (1909) spoke of "incorrect ideas" and Breuer (1957) mentioned "pathogenic unconscious ideas" as a causal factor of psychic disturbance. Horney (1950) talked about a clash between the "idealized self" and real self.

Tolman (1932, 1942, 1959) added cognitive mapping to the SOR formulation. Rotter (1954) spoke of external and internal reinforcement.
Lefcot (1966), a student of Rotter's found that psychotics and neurotics had an external locus of control while more adjusted individuals had an internal locus. Kelly (1955) developed Fixed Role therapy in which the client adopts new cognitive, affective, and behavioral roles. Bandura (1969, 1974) says that behavior is often controlled by internal consequences.

An approach similar to Kelly's is Rational Emotive Therapy (RET) which is probably the current most popular form of cognitive therapy. Albert Ellis (1957, 1961, 1962, 1971, 1973, 1977) is the originator, founder, and creator of Rational Emotive Therapy. His basic premise is that early learned irrational, unscientific, magical beliefs and attitudes are directly responsible for emotional disturbance. He developed the following instructional model:

A. environment, situation

B. cognitions, attitude, belief

C. emotions, affective responses

In this model, "B" (cognitions), and not "A" (situations), are responsible for "C" (affect). Ellis (1961) also identified commonly held irrational beliefs. Some of these are:

1. I must be perfect at everything or all important tasks I perform.

2. I must have the love and approval of all significant people around me.

3. Certain events are horrible and catastrophic.

4. Certain people are bad and should be punished for their misconduct.
5. Much of my behavior is controlled by external forces which are beyond my control.

RET receives support from a wide range of empirical investigation as well as many different theorists. Arnold (1960) says that emotions and cognitions often are parallel events, are circularly reinforcing, and essentially one in the same thing. Raimy (1975) states that if ideas associated with one's psychological problems can be changed in the direction of greater accuracy as one's reality is concerned, then his psychological problems will likely be alleviated. Others who support Ellis's basic position are Beck (1967, 1976), Lazarus (1971), Maultsby (1971), Meichenbaum (1977) and Tosi (1974). Ellis (1975, 1977) lists several hypotheses and a variety of research which support his position:

1. **Cognitions Control Emotions**

Schachter and Singer (1962) gave adrenalin shots to their subjects mimicking physiological/emotional arousal. These subjects were then exposed to stooges displaying anger or happiness. In the absence of an explanation the subjects labeled their own emotional states in accordance with present environmental cues (stooges behavior). This suggests that not only arousal is important in emotional states, but also cognitive-environmental cues. In a study by Rimm and Litvak (1969) college students read triads of sentences ("My grades may not be good enough this semester .... I might fail out of school .... that would be awful.") that according to Ellis (1962) would lead to maladaptive emotional responses. In a control condition subjects read triads of sentences ("Inventors are imaginative .... Edison was an inventor .... therefore he was imaginative.") which were neutral. Subjects in the
experimental group experienced significantly more emotional arousal (measured by respiratory rates and GSR) than the control group. A similar study by Velten (1968) investigated the relationship between self-read statements which were positive ("This is great .... I really feel good."), neutral ("Utah is the beehive state."), or negative ("I have too many bad things in my life") and subsequent mood change. As the content of the statements changed, so did measures of mood state. Newmark (1973) found that neurotics endorse more irrational beliefs than normals; and Goldfried and Sebocinski (1973) found that individuals experiencing heightened anxiety also endorsed more irrational content.

2. Cognitions Control Physiological Responses

Tosi (1974) expanded Ellis's "ABC" model to D and E. High cognitive control exists over not only emotional states, but physiological and behavioral states. Hans Selye (1956), an international authority on physiological stress recently (1978) commented, "A better way of handling stress involves taking a different attitude towards various events."

Graham (1970) expanded Alexander's (1950) work on psychosomatic disorders. It is Graham's contention that specific attitudes are associated with specific psychosomatic disorders. For instance:
TABLE 1
Psychosomatic Disorders and Associated Attitudes

<table>
<thead>
<tr>
<th>PSYCHOSOMATIC DISORDER</th>
<th>ATTITUDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>acne</td>
<td>felt he was being picked on and wanted to be left alone</td>
</tr>
<tr>
<td>rheumatoid arthritis</td>
<td>felt tied down and wanted to get away</td>
</tr>
<tr>
<td>low back pain</td>
<td>wanted to run away</td>
</tr>
<tr>
<td>migraine</td>
<td>felt a need to achieve and relaxed afterwards</td>
</tr>
</tbody>
</table>

Zimbardo (1972), based on work previously done by Luria (1938), used hypnosis to facilitate temperature changes between hands. Zimbardo suggests that individuals can learn to cognitively control what was previously considered involuntary.

3. Cognitions Control Behavior

Schwartz and Gottman (1974) found that the difference between low assertive and high assertive college students was the nature of their internal dialogs. Although both groups performed assertively in a hypothetical situation, when the same situation was made slightly more threatening, the low assertive students performed poorly. A questionnaire revealed that the low assertive group made fewer positive and more negative self-statements than did the high assertive group. Glass and Singer (1972) found that perceived control over a loud disruptive noise lead to heightened performance. Valins and Ray (1967) gave fake
environmental feedback to snake phobics which resulted in increased approach behavior. Thorenson (1977), Thorenson and Mahaney (1974), Bandura (1969), Homme (1965) and Seligman (1975) also support this position. These studies demonstrate that what a person says to himself (self-statements, images, evaluations, etc.) before, during, and after an event, influences both his emotional and behavioral responses.

4. Active-Directive Therapy is Effective

Ellis (1973) and Meichenbaum (1974) set forth this hypothesis. Anderson (1968) found that higher functioning counselors were more active and their client's exhibited higher self-exploration. Traux (1968) found that the persuasive potency of the counselor was related to client improvement.

5. RET is an Effective Therapy

Recent meta-analysis of psychotherapy outcome studies (Glass and Smith, 1975 and 1977) suggest that RET is effective. An early investigation by Ellis (1957) compared 78 individuals treated with psychoanalysis with 78 individuals treated with RET. Ellis subscribed to traditional psychoanalysis early in his career, but later switched to RET, the above sample receiving either therapy according to Ellis's particular bias at the time. In the psychoanalysis group 63% showed improvement with a mean of 35 treatment sessions. The RET group showed 93% improvement with a mean of 26 treatment sessions. Both groups were matched on significant variables, but the results may be confounded by experimenter bias. Ellis (1971) believes the RET therapist's task is to provide the client with three insights: 1) He first determines the precepitating events; 2) He determines the specific irrational thought
patterns; 3) He shows the client how to alter these thought patterns. The psychoanalyst may spend years providing insight 1, but insights 2 (past events are perpetuated in the present by the client's self-reinforcing irrational beliefs) and insight 3 (the client can alter this belief system) are often neglected.

Several studies have compared RET with other intervention strategies. Maes and Heimann (1970) compared the effectiveness of RET, client-centered therapy, and systematic desensitization with test anxious high school students. Following treatment the desensitization and RET groups showed lessened emotional reactivity as measured by heart rate and galvanic skin response in a testing situation than either the client-centered group or a nontreated control group. RET was also effective in lowering scores on an anxiety self-report test and was significantly more effective than the desensitization group. Meichenbaum, Gilmore, and Fedoravicius (1971) compared the effectiveness of group RET with group desensitization in treating speech anxiety. Three other groups (group desensitization followed by a combination of RET and desensitization; attention controls; waiting list controls) were also included in the study in which all subjects received 8 one hour sessions. Changes in speech anxiety were measured by objective and self-ratings on test speeches conducted prior to and after treatment. The RET group and the desensitization groups were both effective in reducing anxiety. The subjects that benefited the most from RET were those who experienced anxiety in many different situations while the subjects who benefited most from desensitization were those whose anxiety was limited to public speaking situations. Tosi and Moleski (1976) investigated the efficacy
of RET and systematic desensitization, with and without invivo behavioral tasks (tasks included five phone calls to significant others and five spontaneous conversations with strangers). RET was more effective in reducing stuttering, anxiety and negative attitudes towards stuttering, than desensitization which was more effective in reducing speech disfluencies than a control group. The addition of invivo behavioral tasks increased the efficacy of both therapies on reducing negative attitudes towards stuttering and speech disfluencies. Delereta (1969) demonstrated that RET was more effective than behavioral or client centered approaches for treating anxiety in introverts. Several other lines of research (Meichenbaum, 1972; Trexler and Karst, 1972) also support this position.

In RET the therapist identifies irrational beliefs, actively confronts the client, and re-educates him in rational thinking. However, many techniques have been developed to use within the cognitive framework besides the confrontive, persuasive and debating methods espoused by Ellis. A list of some of these techniques is provided below. Some of the methods and applicable research will follow:

1. Confrontation (Ellis, 1961 and 1971)
2. Bibliography (Ellis, 1971 and 1973)
3. Systematic Homework (Maultsby, 1971)
4. Rational Emotive Imagery (Maultsby, 1971)
5. Thought Stopping (Wolpe, 1958)
7. Rational Emotive Modeling (Bandura, 1969; Lange and Jakubowski, 1976)
Covert Sensitization. Behavior problems related to self-regulation (eating, smoking, drinking) often are associated with maladaptive response gradients. Participation in the behavior leads to strong immediate positive consequences, while the aversive effects of overindulgence are very delayed (Ferester, Nurberger and Levitt, 1962). A technique which collapses time by having the client imagine aversive consequences early in the response chain is covert sensitization (Cautela, 1966).

First used by Lazarus (1958) a hypnotized client was directed to imagine himself performing an undesirable behavior (compulsive rituals) and then experience aversive consequences (tension). Next the client was asked to imagine terminating the behavior and feel calm and relaxed (negative reinforcement). Covert sensitization has been successfully applied to a number of behavioral problems including alcoholism (Cautela, 1967); obesity (Stuart, 1967); homosexuality and pedophilia (Barlow, Leitenberg and Agras, 1969); fetishism (Kolvin, 1967); transvestite fantasies (Davison, 1968); gasoline sniffing (Kolvin, 1967); and smoking (Irey, 1972). A typical protocol used by Cautela (1973), is listed below:

"I want you to imagine that you are walking along the street and as you pass a candy counter, you stop and pick up a few candy bars.
As you begin to open the wrapper of the first bar you get a very queasy feeling in the pit of your stomach. You start to feel weak, nauseous, and sick all over. As you raise the candy bar to your mouth, you feel a bitter liquid come into your throat. You swallow it down and put the candy in your mouth. As soon as the candy reaches your lips you puke. The vomit rushes out all over your hands, the candy, and down the front of your dress. Your eyes are burning and limy mucous continues to run down your chin and your neck. The sight of all the vomit makes you vomit more until you can not vomit any more than a little trickle of watery substance. You feel so horrible and so sick, and so embarrassed. You turn and run away from all that mess and feel much better."

Imagery scenes are often provided after the client is relaxed via muscular relaxation. The problem behavior and the aversive stimuli are presented in typical classical conditioning terms and are repeatedly associated with each other. An escape component (or negative reinforcement) was also utilized. Escape from the nauseous eating scene is reinforced and avoidance of eating candy is strengthened.

In a study conducted by Barlow et al., (1969) covert sensitization was used to treat a pedophillic. The sensitization period resulted in a marked reduction of sexual urges. Imagining the problem situation without the aversive stimuli increased urges and the reintroduction of sensitization again reduced the frequency of sexual urges. This study clearly demonstrates the power of this technique on a short term intervention basis. Janda and Rimm (1972) treated obesity with a covert sensitization procedure (stomach discomfort and vomiting paired with non-nutritional food) combined with muscular relaxation. Covert reinforcement (scenes involving the client eating nutritional foods in a positive atmosphere) and aversion relief (scenes involving the client approaching non-nutritional food, feeling ill, running away from the food without eating it, and subsequently feeling better) were also used. Covert reinforcement was designed to sharpen the client's discrimination of
nutritional and non-nutritional food and aversion relief was used to strengthen avoidance responses to non-nutritional food. Therapy involved six weekly sessions and during each session 15 scenes were presented, five of each type (covert sensitization, covert reinforcement and aversion-relief).

The clients were weighed at each session, but received no reinforcement for weight change. Two other groups were included, an attention group, which received nondirective therapy, relaxation training and weekly weight checks, and a control group which simply visited the center weekly. At the termination of therapy the sensitization group demonstrated a mean weight loss of 9.5 pounds, compared with the attention group's 4.5 weight loss, and the control group's 0.7 weight loss. At a six week follow-up the sensitization group remained stable (-0.2 lbs.) while the attention group gained weight (+2.3 lbs.). A strong correlation existed between the clients' self-reported level of discomfort during aversive presentations and weight loss. Those clients reporting extreme discomfort lost a mean of 17.3 pounds at the termination of therapy and a mean loss of 21 pounds at the 6 week follow-up.

**Thought Stopping.** A technique similar to covert sensitization is thought stopping (Lazarus, 1971). In this procedure the client is asked to focus on obsessional or anxiety provoking thoughts and the therapist suddenly and forcefully yells "stop." Later in the procedure the locus of control is shifted to the client who interrupts his own thoughts by covertly saying "stop" whenever he repeats the obsessional thoughts. The entire procedure consists of the following steps (Rimm and Masters, 1974):
1. Therapist and client identify self-defeating thoughts.
2. Therapist overtly interrupts client's overt thoughts.
3. Therapist overtly interrupts client's covert thoughts.
4. Client overtly interrupts client's covert thoughts.
5. Client covertly interrupts client's covert thoughts.

Several case histories which use thought stopping techniques are included below. (Note that many of these studies use other forms of aversive stimulation besides the word "stop.") Mahoney (1971) reported the treatment of a 22 year old male who was obsessed with thoughts that he was old, brain damaged, and being persecuted. The client was instructed to vigorously snap his wrist with a rubber band whenever he engaged in the obsessional thoughts. The client was also instructed to make cigarette smoking contingent on positive self-statements. Therapy was effective in eliminating obsessional thoughts and improvement was maintained at a four month follow-up. Kushner and Sandler (1966) treated a 48 year old male who was obsessed with visual suicidal ideation daily. The images were paired with shock over a number of trials. Suicidal images were effectively reduced and remained stable at a three month follow-up. Agras (1967) reported treating a 25 year old chronic schizophrenic who compulsively engaged in breaking glass. Images of the client breaking glass were paired with electric shock. Glass breaking was almost totally eliminated after 52 sessions and improvement maintained at an 18 month follow-up. Bucher and Fabricatore (1970) reported the treatment of a 47 year old paranoid schizophrenic who heard nonexistent obscene and critical voices for five years. He was given a portable shock apparatus and instructed to shock himself whenever he hallucinated.
Improvement was reported after nine days of treatment and remained stable until the 36th day at which time the client was discharged. Two weeks later the client returned to the hospital. Hallucinating and drunk he reported that he did not want to leave the hospital again because of the voices.

**Anxiety Relief.** Another procedure utilizing aversive stimuli is anxiety-relief (Wolpe, 1958). Typically this procedure involves providing the client with electric shock which is terminated when the client says "calm." The word "calm" eventually becomes a strong conditioned stimulus for relaxation. Meichenbaum (1971) combined this procedure with instruction in self-verbalizations for the treatment of snake phobics. In Meichenbaum's procedure, the onset of shock was made contingent upon the client engaging in verbalizations associated with snake avoidance ("It's ugly, I can't touch it"). The offset of shock was made contingent upon the client engaging in verbalizations incompatible with snake avoidance ("Relax, I can touch the snake").

Post-test behavioral and self-report measures indicated that the anxiety relief/cognitive restructuring group was more effective than a cognitive restructuring only group. A third group, which received shock for positive verbalizations while avoidance verbalizations terminated shock, was as effective as the anxiety relief/cognitive restructuring group. The last finding was incompatible with traditional behavior theory which would predict an increase in snake avoidance after treatment as opposed to the above reported decrease. Meichenbaum believed that the client's developed a set of self-instructional, coping verbalizations which were used to deal with the shock and these skills were then generalized to snakes.
Stress Inoculation. As a result of the above findings, Meichenbaum and Cameron (1972) developed a stress inoculation procedure for the treatment of multiphobic clients. Clients were given training in physical relaxation and cognitive restructuring procedures. After these procedures were mastered, the clients were given an opportunity to practice the coping skills by the presentation of unpredictable shock (in terms of intensity and timing). The stress inoculation procedure was compared with a desensitization group utilizing imagery only and an anxiety relief/cognitive restructuring group. Post-test behavioral and self-report measures indicated that stress inoculation was the most effective treatment. The desensitization group showed minimal generalization on post-test follow-up measures as compared to the two other groups which contained a cognitive restructuring, self-instruction component.

Modeling. Bandura (1969) has called to attention the role that modeling plays in the acquisition of new behaviors. Through exposure to live or symbolic models, the observer gains information that is converted to covert, cognitive representations and retained for later use as symbolic cues to behavior. Meichenbaum (1971) used modeling therapy for the treatment of snake phobics. The study compared the efficacy of self-verbalizing models vs. non-verbalizing models and the efficacy of coping models (initial fear, followed by coping responses and finally mastery) vs. mastery models. Self-report and behavioral measures indicated that a self-verbalizing, coping model was the most effective treatment. Five of nine clients in the coping model condition overtly and spontaneously engaged in modeled coping verbalizations during post-test evaluation. The cognitive coping models initially commented on their
emotional and physiological arousal, while at the same time emitting verbalizations. At the completion of the task (approaching the snake) the model emitted self-rewarding verbalizations.

A representative dialog is presented below:

"That snake makes me nervous .... my heart is really beating .... Just stay calm and relaxed .... take a deep breath .... you can do it, one step at a time .... you can do it .... (at conclusion) It worked, I did it! Wait till mom hears about this!"

Cognitive Self-Guidance. A combination of modeling and overt to covert rehearsal has been used by Meichenbaum to increase impulsive children's problem solving (Meichenbaum, 1971); schizophrenics performance of attentional and cognitive tasks (Meichenbaum and Cameron, 1973); and college student's creativity (Meichenbaum, 1972). Meichenbaum (1974) lists the following steps in his cognitive self-guidance training procedure:

1. Therapist performs task while client observes (modeling).
2. Client performs task while therapist instructs.
3. Client performs task while instructing himself aloud.
4. Client performs task while whispering self-instructions.
5. Client performs task while self-instructing covertly.

The sequence was designed to parallel the internalization processes by which normal self-cuing responses are acquired. Using the above procedure, impulsive children were trained to engage in appropriate problem-solving verbalizations on a variety of training tasks which increased in difficulty each session. The cognitive self-guidance group showed significant improvement on performance tests as compared to a placebo and a control group. The improvement in performance remained stable at a one month follow-up.
The following is an example of the therapist's modeled verbalizations which the impulsive children subsequently used (first overtly, then covertly):

"Okay what is it I have to do? You want me to copy the picture .... I have to go slowly and carefully. Okay draw the line down, down, good; then to the right; .... Good, I'm doing fine so far. Remember go slowly. Now back up again. No, I was supposed to go down. That's okay. Just erase the line .... Even if I make an error I can go on slowly and carefully. Okay, I have to go down now. Finished. I did it!"

A similar procedure was used with a group of hospitalized schizophrenics. Like the impulsive children, the schizophrenics were trained to use cognitive self-guidance to "pay attention, listen and repeat instructions, disregard distraction." The clients were also trained to be sensitive to cues (facial and behavioral reactions of others) that indicated that they were engaging in schizophrenic behavior or verbalizations. These cues were used by the clients as stimuli for them to engage in self-guidance statements "to be relevant and coherent, to make oneself understood." After the clients learned the cognitive self-guidance techniques, the tasks were gradually increased, requiring more social interaction and cognitive effort. The cognitive self-guidance group improved on a number of performance measures as compared to a control group at post-test and at a three month follow-up.

To increase college student's creativity, Meichenbaum first made the clients aware of their self-verbalizations which inhibited creativity. These statements were categorized in two general areas; the client questioned his own creative powers ("I'm not very original") and the client externalized by questioning the value of the task ("Is this what psychologists mean by creativity, telling all the uses of a brick? What
62

a waste." Next the clients were trained to use cognitive self-guidance to perform more creatively. The following is an example of the therapist's modeled verbalizations which the clients subsequently used (first overtly, then covertly):

"I want to think of something no one else will think of, something unique .... Be freewheeling, no hangups .... I don't care what anyone thinks; just suspend judgement .... I'm not sure what I'll come up with; it will be a surprise ... The ideas can just flow through me ... Okay, what is it I have to do? ...."

The cognitive self-guidance group, relative to another creativity training group which did not emphasize cognitive factors, and a control group, demonstrated the following significant increases: increased originality and flexibility on tests of divergent thinking; increased desire for complexity; increase in human movement responses on inkblots; and changes in self-concept.

Premack Principle. Another behavioral technique, the Premack Principle may also be used in a cognitive framework. The Premack Principle (Premack, 1965) states that a low probability behavior may be reinforced by the privilege of engaging in another behavior of higher probability. Homme (1965) recommended an adaptation of the Premack Principle to cognitive control. Using smoking as an example, Homme suggested that the behavior be interrupted as early as possible in the response chain and that incompatible behaviors be reinforced. An example of the procedure is as follows:

<table>
<thead>
<tr>
<th>Urge to smoke</th>
<th>Antismoking Thought</th>
<th>Pro-nonsmoking Thought</th>
<th>Reward</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Smoking causes cancer&quot;</td>
<td>&quot;My food will taste better&quot;</td>
<td>Coffee</td>
<td></td>
</tr>
</tbody>
</table>

High probability behavior Low probability behavior Low probability behavior High probability behavior
One study reported the successful application of Homme's procedure to obese individuals. Horan and Johnson (1971) asked their obese clients to make a list of negative thoughts about being obese and positive thoughts about not being obese. One group of clients was asked to repeat the pairs of statements to themselves daily, while another group was told to follow their repetition with a high probability behavior. Only three sessions were conducted, but the latter group lost significant weight after eight weeks as compared to a control group.

Tosi, Briggs and Morley (1971) utilized the Premack Principle to modify the study habits of "high risk" college students. The students were taught a reading skills program and studying was arranged so that the successful completion of homework was followed by self-reinforcing activities (e.g. partying with friends). The time and difficulty of task was gradually increased. At the termination of the program the students exposed to the Premack Principle demonstrated significantly higher grade point hours than a control group.

Written Homework. The use of systematic written homework has been reported as an adjunct to therapy (Ellis, 1971), although it remains largely unsubstantiated by research. Maultsby (1971) is given credit for its development. Situations are analyzed according to Ellis's ABC model. A represents a situation; B is the persons thoughts; and C is the emotional response. If the individual is experiencing a negative emotional response at C, it is probably related to irrational thoughts at point B. The individual then substitutes more appropriate or alternative thoughts at point B. All this is analyzed according to a structured written assignment which is completed between therapy sessions. Maultsby (1971)
conducted a study using systematic written homework and found it to be an effective technique.

Rational Emotive Imagery. Maultsby (1971) also developed Rational Emotive Imagery (RET). In this procedure the client is asked to imagine an unpleasant event and is encouraged to feel as intense negative emotions as possible. The client is then told to force himself to feel only mildly disappointed or irritated. After this the client is asked to examine specifically what he said to himself to force this change. Maultsby lists three benefits of REI: 1) deconditioning to environmental cues; 2) practice or self-indoctrination in rational thinking; 3) formation of more adaptive cognitive maps. Maultsby has reported that REI is an effective technique within the RET framework.

RATIONAL STAGE DIRECTED HYPNOTHERAPY

Rational Stage Directed Hypnotherapy (Tosi, 1974; Tosi and Marzella, 1975) is a synthesis of many of the techniques previously mentioned (Ellis's RET; Maultsby's Rational Emotive Imagery; Cautela's Covert Sensitization; Bandura's Modeling). RSDH emphasizes high cognitive control over affective, physiological and behavioral processes. Tosi (1974) revised Ellis's original model by expanding it to D, and E. This is illustrated more clearly below:

A. Situation, Environmental Event (can be external and internal)
B. Cognition (thoughts, attitudes, beliefs)
C. Emotional Response (affect - anxiety, anger, etc.)
D. Physiological Concomitant (headaches, increased heart rate, etc.)
E. Behavioral Response (approach/avoidance tendencies)

RSDH teaches analysis of behavior according to this model and emphasizes cognitive restructuring skills which are developed, implemented and reinforced while the client is in a state of hypnosis. Hypnotic relaxation and imagery increases the realism and reinforcement power of therapy. In a process similar to Cautela's covert sensitization, the individual via imagery focuses on negative emotional/physiological/behavioral states while at the same time learns to identify accompanying irrational ideas or cognitive distortions. The entire sequence is negatively reinforced, emphasizing the high cognitive control over other processes. Next the individual learns to associate more rational and realistic cognitive states with more self-enhancing emotional/physiological/behavioral states. This process is reinforced by the therapist, and usually the client derives much internal gratification or reinforcement from the process independent of the therapist's suggestions.

Cognitive restructuring skills are developed within the framework of developmental growth stages. The stages adapted for RSDH were originally developed by Mooney (1963) and Quaranta (1971). Quaranta identified six stages of development in career education. He believes that a person moves through awareness, exploration, commitment, skill development, skill refinement and redirection of change during the process of career change. Each stage is non-static and overlapping; that is successive stages contain the elements of earlier stages. Tosi (1974) and Tosi and Marzella (1975) modified these stages and adapted them for use in RSDH and the psychotherapeutic process. These stages (awareness, exploration, commitment, implementation, internalization,
redirection-change) provide the client with a clear conception of the entire therapeutic process. They enable the client to clearly mark his progress within the various stages and they reduce the ambiguity of therapy for both client and therapist. Once the client experiences and clearly comprehends the stages, he can learn to employ them beyond the therapeutic relationships. The stages are exemplified below:

"Awareness - the client sees in himself and his environment new possibilities for growth. He is introduced to new conditions that are contradictory to his self-defeating thoughts, feelings and actions. Awareness implies witnessing, observing, as well as participating in one's innermost thinking, emotional experiences, physiological functioning, motoric and transactional functioning."

"Exploration - the client tests his new awareness or knowledge about himself in the therapeutic context and in real life situations. He engages experimentally in high level cognitive restructuring. He experiences or reexperiences situations he previously avoided, tries out new behaviors and evaluates their consequences. Resistance often becomes increasingly apparent as he explores and develops behavioral modifying skills."

"Commitment to Rational/Constructive Action - The client poses his previous awareness, explorations, and newly acquired skills against his tendency to resist or not to resist an authentic encountering of self and environment. He is more aware of the innermost thoughts that produce affective/physiological/behavioral reactions manifested in tendencies to approach or to avoid significant life situations. The stage of commitment represents a risk, and may lead to a last minute attempt to avoid subjective or objective reality. Commitment is the juncture at which many terminate therapy. It is the point of choice or decision to act."

"Implementation - The client after committing himself to constructive action, implements (via imagery and in-vivo) the self and environmental management skills he was in the process of acquiring. His skills at this point may include cognitive restructuring, decision making, self-hypnosis and relaxation."

"Internalization - The client demonstrates that his new learnings and experiences are a part of him. He shows obvious signs of incorporating more reasonable modes of thinking and acting into his behavioral repertoire on a consistent basis. He uses behavioral modifying procedures with greater ease and proficiency."
Change and Redirection - The client notes significant changes in his thinking and sees that he can control significantly negative emotions and self-defeating actions. He transacts more effectively with his environment - thus maximizing positive consequences. He may also, with or without the help of a therapist, redirect himself through the stages once again relative to some other set of personal concerns.

Three types of stage-directed therapy have been developed and empirically investigated.

1. Rational Stage Directed Therapy - cognitive skills are developed within the stage-directed framework, but all therapy is conducted during the normal, waking state.

2. Rational Stage Directed Imagery - the development of cognitive skills (within the stage-directed framework) is enhanced via imagery by using relaxation techniques (progressive muscle relaxation, meditation, or simply imagining scene by closing the eyes in a non-distracting atmosphere).

3. Rational Stage Directed Hypnotherapy - hypnosis and hypnotic imagery is used to facilitate the cognitive-behavioral restructuring process. Furthermore, the individual is directed through the stages during hypnosis increasing the experiential quality of therapy.

Several research studies and case studies support the efficacy of these approaches. Marzella (1975) investigated the efficacy of (RSDI) and (RSDH) in reducing psychological stress in college students. Psychological stress was defined as the client's scores on the Minnesota Multiphasic Personality Inventory (MMPI), the Multiple Affect Adjective Checklist, the Self-Rating Depression Scale, the State Trait Anxiety Inventory and the Depression Inventory. Three control groups were
included in the study: a hypnosis only group; a placebo group; and a control group. RSDH, RSDI, and hypnosis all were effective in reducing emotional stress. Despite the generally positive findings for sensory imagery procedures, the results revealed only conditional support for specific treatments.

Boutin (1976) investigated the efficacy of RSDH on the reduction of test anxiety in nursing students. RSDH was compared with three control groups: hypnosis only group, placebo group, and a control group. On a number of test anxiety measures RSDH demonstrated the greatest reduction in test anxiety followed by the hypnosis only group which also demonstrated a large reduction in test anxiety relative to the placebo and control groups. On a 2 month follow-up the RSDH group revealed additional decreases in test anxiety while the hypnosis, placebo, and control groups showed minimal change. This finding suggests that the clients who received RSDH integrated and continued to utilize the information gained in therapy after the termination of the process. The test anxiety measures revealed improvement on the cognitive, affective, and physiological levels with RSDH, which is consistent with RSDH's method of intervening on several levels.

Reardon (1976) investigated the effects of RSDI and RSDT on the modification of self-concept and psychological stress with delinquent adolescent females. RSDT involved imagery techniques similar to Maultsby's REI while RSDI employed an elaborate cognitive relaxation procedure. Self-concept was defined as the client's scores on the Tennessee Self Concept Scale (TSCS) positive scales. Psychological stress was defined as the client's scores on the empirical scales and
self-criticism scale on the TSCS and the clinical scales on the Multiple Affect Adjective Checklist. As compared to RSDT, a placebo group and a control group, RSDI demonstrated significant positive changes in overall self-concept and in the specific areas of identity, behavior, physical self, moral self, and social self. The RSDI group also showed decreased levels of anxiety of depression. The RSDI group demonstrated additional improvement at a 2 month follow-up while the other groups showed minimal changes. This supports Boutin's (1976) finding which suggests that the client integrates and continues to use the information gained in therapy after the discontinuation of therapy.

Case studies treating guilt (Tosi and Reardon, 1976); depression (Reardon, Tosi and Gwynne, 1976); test anxiety (Boutin and Gwynne, 1978); nonassertiveness (Howard and Tosi, 1978; Gwynne, Tosi and Howard, 1978); anxiety neurosis (Tosi, Howard and Gwynne, 1978); migraine (Howard, Reardon and Tosi, 1978); and a modification of RSDH used to enhance athletic performance (Howard and Reardon, 1978) provide further support in a wide variety of areas for RSDH.
CHAPTER III

METHOD

This chapter will describe the research methodology used in this study. The chapter will also present sections related to the selection of instruments, sample selection, design, treatments, and a general summary.

A 4 x 3 factorial design with four levels of treatment, and three repeated measures will be employed. Specifically the study was conducted to determine the effectiveness of three therapeutic approaches on neuro-muscular performance, self-concept, anxiety and muscular growth.

The design included one control group and three treatment groups which were initially assigned equal number of Ss. The treatment groups were: 1) modified Rational Stage Directed Hypnotherapy (RSDH); 2) hypnosis only (HO); 3) cognitive restructuring only (CR).

The dependent measures for this study were the pre and post measures on: 1) the prone bench press; 2) Tennessee Self-Concept Scale (TSCS); 3) State-Trait Anxiety Inventory (STAI); and 4) measurement of chest and dominant arm. Pretreatment measures were taken seven days prior to the beginning of treatment. Post treatment I measures were obtained seven days following the last treatment; and post treatment II measures were obtained one month after the completion of treatment.
Specifically, this study was conducted to determine the effectiveness of RSDH, hypnosis only, and cognitive restructuring only on neuromuscular performance as measured by a prone barbell press, self-concept as measured by the TSCS, anxiety as measured by the STAI and muscular growth as measured by dominant arm and chest measurements.

**SELECTION OF INSTRUMENTS**

**Tennessee Self-Concept Scale (TSCS): Clinical and Research Form**

The TSCS is a paper-pencil, self-report, self-administered instrument that can be used with individuals twelve years old or older, or with individuals having at least a sixth grade education.

The test consists of 100 self-descriptive statements to which the subject responds on a five-point scale ranging from "completely false" to "completely true." Ninety of the self-report items were classified into several scales by seven clinical psychologists on the basis of their content. The remaining ten items came from the MMPI L-Scale which comprise the Self-Criticism Score (a measure of defensiveness).

The TSCS gives an overall indicator of self-esteem (total positive score) which is a summation of three scales of internal frames of reference (rows) and five scales designed to measure external frames of references (columns). The scales are described below:

The rows are concerned with how the individual describes himself from an internal frame of reference. Row 1 represents his basic identity or "what he is," as he perceives himself at the most basic level. Row 2 gives a measure of Self-Satisfaction or how the individual accepts himself. Row 3 deals with the subject's perception of his own behavior. The three rows then may be seen focusing on: 1) "What he is," 2) "How he feels about himself," 3) "What he does" (Hamner and Fitts, 1968).
The five columns deal with the external frame of reference the individual uses to describe himself:

Column A: Physical Self - The physical attributes or functioning, sexuality, stage of health or appearance.

Column B: Moral-Ethical Self - Moral, ethical, and religious aspects of the self.

Column C: Personal Self - Personal worth or adequacy, self-respect, and self-confidence.

Column D: Family Self - The individual's relationship with his primary group (family and close friends) and his sense of adequacy as a family member.

Column E: Social Self - The individual's sense of adequacy or worth in relationships with people or society in general. (Fitts, et. al., 1971).

The total P score is obtained from a 3 x 5 matrix of subscales formed from the aforementioned rows and columns. High total P scores are associated with individuals who are described as being confident, like themselves, and feel that they have worth. Individuals with low scores are described as depressed, unhappy, view themselves as undesirable and have little confidence (Fitts, 1965).

The TSCS also provides information pertinent to the individual's approach to the test. The Distribution Scores reflect the number of times a subject answers from "completely true" or "5" to "completely false or "1" in response to the 100 self-descriptive statements. The D score is a summary score derived from these five categories. High D scores reflect cognitive rigidity and an over-definite conception of self. Mid range D scores reflect a balanced cognitive set. Low D scores reflect high uncertainty and a poorly differentiated conception of self.
Conflict scores measure the amount of conflict between positively and negatively worded self-descriptive statements. The Net Conflict Score measures the direction as well as amount of conflict (over-affirming positive statements, inability to deny negative statements; over-denying negative statements, inability to affirm positive statements). The Total Conflict Score gives an absolute measure of the amount of conflict without regard to direction. Fitts (1965) states that "high scores indicate confusion, contradiction and general conflict in self-perception; whereas low scores have the opposite interpretation."

The Variability Scores provide a measure of consistency from one area of self-perception to another. The Total V Score represents the total amount of variability for the entire test, while variations within the rows (internal reference) and columns (external reference) are summarized by the Row Total V and Column Total V Scores (Fitts, 1965).

The True-False Ratio serves as a measure of response set, whether or not the individual agrees or disagrees with items with no real regard for the content of items. Mid range ratio scores are probably most optimal, while extremes reflect deviancy in self-description.

Besides the various scales already mentioned, the TSCS also includes six empirical scales designed to differentiate various clinical populations. In the development of these scales the following "deviant" subjects were given the TSCS:

<table>
<thead>
<tr>
<th>Type</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norm</td>
<td>626</td>
</tr>
<tr>
<td>Psychotic</td>
<td>100</td>
</tr>
<tr>
<td>Neurotic</td>
<td>100</td>
</tr>
<tr>
<td>Personality Disorder</td>
<td>100</td>
</tr>
</tbody>
</table>
Defensive Positive N = 100  
Personality Integration N = 75

Items which differentiated each group from all others were then used to compose specific scales for each group. Fitts (1965) reported that there was some overlapping of items with a number of items being used on more than one scale. The six empirical scales derived from this method are listed below:

Defensive Positive Scale (DP) - This scale consists of 29 items which differentiated psychiatric patients having Total P Scores above the norm group mean from the other patient groups and from the norm group. It is thought to represent a more subtle measure of defensiveness than the Self-Criticism Score.

General Maladjustment Scale (GM) - This scale comprises 24 items which distinguish psychiatric patients from non-patients, but do not distinguish between psychiatric classifications.

Psychosis Scale (Psy) - Twenty-three items make up this scale -- items which best differentiate psychotic patients from the other groups.

Personality Disorder Scale (PO) - This scale is composed of 27 items, items which distinguish this psychiatric classification from the norm, psychotic, neurotic, personality integration, and defensive positive groups.

Neurosis Scale (N) - This scale is also composed of 27 items which distinguish neurotic patients from the other group. Like the GM and PD Scales, it is an inverse one. Low raw scores on these scales result in high T-scores.

Personality Integration (PI) - Twenty-five items are included in this scale, representing a group of subjects adjudged, by outside criteria, to have a better than average level of adjustment.

Number of Deviant Signs (NDS) - The NDS score is an empirically derived measure, being simply a count of the number of deviant features of other scores. It is the Scale's best index of psychological disturbance.

Norms for the TSCS were derived from a sample of 626 individuals from across the country. The sample included both males and females
ranging in age from 12 to 68. It was representative of all social, economic and educational levels from 6th grade through the Ph. D. degree. The sample, however, was over-represented in the 12 to 30 year age bracket, in college students and with white subjects. Fitts (1965) indicated that the research suggested that there was no need for the establishment of separate norms for age, sex, race, or other variables.

Despite a description of all the TSCS scales given in this chapter, the total P scores are the only ones used in this study. Pound, Hansen and Putman (1977) did a factorial study which indicated that the total P score provided as much information about self-concept as any other TSCS scores. Fitts (1965) stated that the total P score is one of the most important scores and noted that it was comprised of all scores on the subscales. (See Appendix A for copy of this instrument).

State-Trait Anxiety Inventory (STAI)

The STAI is a paper-pencil, self-administered, self-report instrument designed to measure anxiety. It consists of 20 statements that ask how the individual generally feels and 20 statements that ask how the individual feels at the moment. These two sets of questions measure trait and state anxiety (differentially defined in Chapter II). To the statements on how the individual feels at that moment (state anxiety), the individual is asked to respond with one of the following: 1) not at all; 2) somewhat; 3) moderately so; 4) very much so. To the statements on how the individual feels generally (trait anxiety), the individual is asked to respond with one of the following: 1) almost never; 2) sometimes; 3) often; 4) almost always. The scale can be used with individuals who have a sixth grade education or higher.
Normative data are available on several different populations. The high school norms were based on 377 high school juniors. The neuropsychiatric norms were based upon an N of 461 subjects. Norms for the general medical and surgical patients were based upon a sample of 161 patients. The college student norms consisted of two samples: 1) 484 undergraduate students; 2) 982 incoming freshman. Normalized T scores and percentiles for both state and trait are available for the above mentioned populations. (See Appendix B for copy of this instrument).

**Prone Barbell Press**

While lying on the back (on a standard bench in which the feet are touching the floor), the individual lowers a barbell from arm's length until the weight touches the chest and then extends the weight upward until it is again at arms length. During performance of the lift the feet must remain flat on the floor, the buttocks must keep constant contact with the bench and the bar must not bounce on the chest or be extended unevenly.

Each individual warms up with a light weight (to prevent injury) and proceeds until a maximal single repetition is achieved. The single maximal attempt is computed in pounds. Two other members of the weightlifting club who are familiar with this movement act as spotters and judges for the individual performing the movement. This is a standard exercise among weightlifters and is performed several times a week in their normal routines.

**Measurement of Dominant Arm and Chest**

The subjects involved in this study were all serious students of weight training. All were interested in increasing the size of their
muscles. A measurement was taken of the largest circumference of a dominant arm in a flexed position and the chest in a relaxed position. Each individual's measurement was taken with a tape measure three times and if discrepancies occurred in the three measurements, an average was computed. The measurer was not familiar with the hypotheses of the study.

SELECTION OF SAMPLE

During the Fall of 1978, the OSU Barbell Club was contacted to ask for volunteers to participate in a study to explore the effect of various psychological strategies on performance. Thirty-five individuals initially volunteered to participate in the study. No mention of a specific treatment methodology was paired with the specific individuals.

The volunteers were recontacted in the Winter of 1979 and given the TSCS, STAI and dominant arm and chest measurement one week prior to the first session. They were also asked to perform a maximum prone press in the week preceding the first session.

From the 35 volunteers, 32 were selected to participate in the study (several individuals were unable to participate at the time designated). Subjects consisted of 32 males who were all members of the Ohio State University Barbell Club. All participants had practiced weight training for a number of years, several had competitive experience. The mean age of the sample was 22.5 years old. All subjects had completed high school and all but five were enrolled as students at the university in either undergraduate or graduate programs.

The 32 subjects were randomly assigned to a treatment by a table of random numbers. Each subject participated in four, one and one-half
hour, treatments spaced at weekly intervals. Thus all treatment was completed within a one month period. During the treatment period, all individual were asked to follow a standardized weight training program to minimize differences in training as an experimental variable.

RESEARCH DESIGN

A 4 x 3 model design (see Figure II) was used with one between subjects variable (4 levels of treatment) and one within subjects variable (3 levels of a repeated measure). All subjects were randomly assigned to one of four treatments. Each group received a tape recorded presentation made by a graduate student familiar with the procedures used, but who was unaware of the hypotheses. The individual groups received four treatment sessions, one and one-half hour in length, spaced at weekly intervals over a four week period. All subjects received pre, post I, and post II tests. Post II testing was conducted one month after the completion of treatment. Pre testing was conducted one week prior to treatment and post I, one week after treatment.
Therapist presented via tape recorder

Figure 2. 4 x 3 Model
TREATMENTS

Hypnosis only (HO)

Hypnosis only (HO) involved two basic parts:

1. In the initial session, a preliminary discussion on hypnosis was conducted (Kroger, pg. 63, 1977). This addressed various issues about hypnosis such as misconceptions; nature of hypnosis; various depths; hypnosis is based on belief, faith, confidence; not a sleep state; resistance, etc. (See Appendix C for copy of this presentation).

2. Following the above presentation, and at the beginning of all subsequent treatments, a standardized hypnotic induction was presented. The hypnotic induction included the following four steps:

   A. The individual was asked to make himself comfortable in his chair and then close his eyes. Next the individual was asked to focus on deep breathing.

   B. Next the individual was directed through progressive cognitive muscle relaxation from the forehead to the toes.

   C. After muscle relaxation counting was used as a deepening technique.

   D. Finally the individual was asked to visualize a pleasant scene.

After hypnosis was induced, the subjects were asked to focus on the pleasant scene and relaxing thoughts until awakened (by counting backwards). This period of focusing was extended until the one and one-half hour treatment period was completed. (See Appendix D for the specific hypnotic induction).
**Control** - This condition was a no treatment control group. These subjects were assigned from the original 32 volunteers. They were administered pre, post I and post II testing, but received no treatment.

**Cognitive Restructuring only (CRO)**

Cognitive restructuring is based upon Ellis's (1962) Rational Emotive Therapy. The major premise of this position is that irrational ideas are associated with maladaptive emotional, physiological, and behavioral states. This is a technique designed to help individual's restructure their thinking in more scientific, realistic and rational directions, which is associated with positive behavioral states. Specifically the individual is taught to identify his negative states, confront himself, and restructure his thinking and behavior in more positive directions. This procedure is basically didactic/educational.

Cognitive restructuring in the present study involved the following procedures:

1. **Introduction to cognitive control** - The individual via an educational model (Ellis's ABC Model, 1962) is instructed that he and not the environment is responsible for his thoughts and emotions. Furthermore via a process of high cognitive control, the individual can gain control over not only emotional and behavioral states, but even physiological processes.

2. **Relationship of self-concept to performance** - Self-concept can be viewed as the summation of self-referring statements (Raimy, 1975) and is thus consistent with the cognitive restructuring model. Furthermore self-concept is intricately related to performance. As self-concept increases, so does performance.
(Fitts, 1972). This data was presented to the treatment group and it was emphasized that if the individual worked on improving his self-concept, not only would he feel better, but probably perform better.

3. Presentation of cognitive restructuring instrument - The Self-Directed Behavior Change Instrument (Tosi, 1973, Appendix E) was presented as an exercise to facilitate high cognitive control over other processes and as an initial means of modifying self-concept. (All of the treatments were presented via tape recorder and the tape recording was stopped after this exercise was explained so the subjects could complete it). Essentially this instrument helps the subjects identify emotionally disturbing situations, facilitates the identification of irrational ideation and finally provides the framework for restructuring.

4. Identification of negative ideation associated with self-concept - After the subject was familiar with the relationship between self-concept and performance, and had developed skills in cognitive restructuring via the Self-Directed Change Instrument, he was directed to identify negative self-referring statements. Typical "irrational ideas" were suggested after examination of the Tennessee Self-Concept Profiles (e.g. a low score on Physical Self may suggest irrational ideation regarding physical attractiveness or sexuality). The subjects were next directed to provide themselves with more "rational" alternatives.
5. Identification of negative ideation associated with athletic performance - A prior pilot study (Howard and Reardon, 1978) helped identify typical negative ideation in regard to performance (e.g. focusing on the amount of weight instead of the process of lifting; "worrying about what others will think if I fail"). These negative cognitive strategies were presented and used as an impetus for the subjects to identify their own performance related negative ideation.

6. Employing cognitive strategies in real life settings - Throughout the treatment period the subjects were encouraged to employ various cognitive strategies in their everyday life in order to facilitate generalization from the treatment setting to other real life settings. Specifically the subjects were first encouraged to employ cognitive restructuring techniques (ABC Analysis; Ellis, 1962) in regard to emotionally disturbing situations. Next they were encouraged to identify negative self-referring statements (self-concept) via Ellis's technique of analysis and counteract these statements with thought stopping (Wolpe, 1958) and positive self-verbalization. Finally the subjects were directed to employ cognitive restructuring techniques prior to and during their athletic performance. The subjects were encouraged to not only eliminate negative ideation (via Ellis's technique), but also to increase their focusing, decrease attention to distraction, maximize arousal level while minimizing anxiety, and counteract negative ideation (via thought stopping, ABC Analysis) as cognitive strategies.
Cognitive Restructuring only (CRO) Treatment Plan -

Session #1

A. Introduction to concepts of cognitive control, irrational ideation is associated with negative emotional and behavioral states (performance). These processes (emotional, physiological, behavioral) can come under high cognitive control, and not environmental control resulting in a modification of self-concept, performance and emotional states.

B. Explain relationship between self-concept and performance. Also point out that self-concept is essentially the thought that we have about ourself.

Session #2

A. Review of Cognitive Model

B. Self-Directed Behavior Change Instrument

1) pass out instruments
2) explanation of exercise
3) completion of exercise, identifying and modifying situation related to negative emotional states (especially performance)

C. Encourage subjects to employ cognitive restructuring skills to everyday real life situations.

Sessions #3


B. Identification of negative self-referring statements (self-concept using TSCS profiles to suggest some areas of negative ideation.

C. Pass out Self-Directed Behavior Change Instrument and use it as a framework identifying negative self-referring statements (self-concept).
D. Encourage subjects to employ cognitive restructuring skills (ABC Analysis, thought stopping, positive self-verbalization) in everyday life to modify self-concept.

Session #4

A. Explain relationship between negative ideation and performance. Suggest previously identified negative cognitive strategies related to performance.

B. Pass out Self-Directed Behavior Change Instrument and use it as a framework to identify performance related negative ideation.

C. Encourage subjects to employ various cognitive strategies (ABC Analysis, positive self-verbalization, increased focusing, decreased attention to distraction, increasing arousal and decreasing anxiety) in regard to their athletic performance.

Rational Stage Directed Hypnotherapy (RSDH)

Rational Stage Directed Hypnotherapy (RSDH) is a systematic, psychotherapy regime, which utilizes hypnotic relaxation and imagery techniques to develop and reinforce cognitive restructuring skills. RSDH has been modified for application to the current problem. Specifically the client in RSDH is typically directed through developmental growth stages which have been minimized in this study (due to the short treatment period, four sessions). The present study also emphasizes the use of more vivid hypnotic imagery in an attempt to facilitate the control of physiological processes (increased blood flow to specific muscle groups to increase muscular growth), and to facilitate performance on the behavioral criterion measure (prone barbell press).
In RSDH and the present study, the individual is first introduced to concepts of cognitive control and restructuring (Ellis, 1962). Next the subject identifies emotionally disturbing situations via the Self Directed Behavior Change Instrument. The subject is then hypnotized and directed to experience the negative emotional states associated with the above identified situations as well as identifying the negative irrational cognitions. The therapist negatively reinforces this entire self-defeating sequence. The therapist next directs the subject to refocus on relaxing thoughts and then visualize the same sequence, visualizing himself engaging in more rational self-talk and experiencing more positive affective, physiological and behavioral responses. This self-enhancing sequence is positively reinforced by the therapist.

The above process is designed to facilitate the restructuring of negative cognitive-emotional responses to specific internally/externally disturbing situations. This process is also effective in restructuring the self-concept (negative self-referring statements). The hypnotic state was finally utilized to enhance physiological processes associated with muscular growth via rich hypnotic imagery. The RSDH treatment is outlined below:

1. Introduction to cognitive control - The individual via an educational model (Ellis's ABC Model, 1962) is instructed that he and not the environment is responsible for his thoughts and emotions. Furthermore via a process of high cognitive control, the individual can gain control over not only emotional and behavioral states but even physiological processes.
2. Relationship of self-concept to performance - Self-concept can be viewed as the summation of self-referring statements (Raimy, 1975) and is thus consistent with the cognitive restructuring model. Furthermore self-concept is intricately related to performance. As self-concept increases, so does performance (Fitts, 1972). This data was presented to the treatment group and it was emphasized that if the individual worked on improving his self-concept, not only would he feel better, but probably perform better.

3. Presentation of cognitive restructuring instrument - The Self-Directed Behavior Change Instrument (Tosi, 1973, Appendix E) was presented as an exercise to facilitate high cognitive control over other processes and as an initial means of modifying self-concept. (All of the treatments were presented via tape recorder and the tape recording was stopped after this exercise was explained so the subjects could complete it). Essentially this instrument helps the subjects identify emotionally disturbing situations, facilitates the identification of irrational ideation and finally provides the framework for restructuring. This instrument was used also to identify negative ideation associated with self-concept and athletic performance as described in the previous section on cognitive restructuring.

4. Introduction to hypnosis - Addressing various issues about hypnosis such as misconceptions; nature of hypnosis; various depths; hypnosis is based on belief, faith, confidence; not a sleep state; resistance; etc. (See Appendix C for copy of this presentation).
5. Induction of hypnosis - (See Appendix D for specific hypnotic induction).

6. RSDH - The development of cognitive restructuring skills within the framework of hypnosis and hypnotic imagery as described in the introduction to this treatment.

7. Facilitation of performance (prone barbell press) via hypnotic imagery - The subjects were directed to visualize themselves performing the behavioral criterion measure (prone barbell press) while hypnotized. They were directed to practice several dimensions via hypnotic imagery: 1) psychological - elimination of negative ideation, increased focusing, elimination of distractions, 2) physiological - attaining proper levels of arousal, 3) behavioral - successful performance of the prone barbell press (facilitation of correct neural pathways). The psychological dimension was practiced via the standard RSDH process described above. The physiological variable (appropriate arousal level) was developed through the use of an arousal scale in which specific events and physiological variables (heart beat, perspiration, etc.) were associated with numbers on the scale. That is, on a scale of one to five with one being the lowest arousal level and five being the highest, the subjects first associated sleep with one, walking with two .... their best performance with five etc. .... until they were able to monitor and control their arousal level. They were given instructions to perform the monitoring of arousal during their real life performances, as well as controlling the other dimensions mentioned.
The behavioral dimension and neural pattern facilitation was accomplished by a detailed description of the behavioral task encouraging only positive visualization and performance.

8. Facilitation of physiological processes associated with muscular growth via hypnotic imagery - Finally the subjects again via hypnotic imagery were encouraged to experience sensory hallucinations to facilitate physiological control associated with muscular growth. They were asked to visualize themselves in a comfortable location in which "hot, moist towels" were placed on their chest and arms. They were directed to "feel a warm, swelling, pulsating sensation" in these areas. They were also asked to visualize their body as a "giant transport system in which all available blood was being sent to the chest and arms." Next the subjects were told to see themselves sometime in the future (hypnotic time progression, Kroger, 1963) with increases in muscular size in the chest and arms. The subjects were directed to visualize themselves feeling proud and happy about the increases they had achieved, and to see others recognizing their muscular gains. All subjects were encouraged to practice the imagery techniques described above (without hypnosis) during the week. (An example of this treatment is provided in Appendix G).

Rational Stage Directed Hypnotherapy (RSDH Treatment Plan - Session #1

A. Introduction to concepts of cognitive control. Also explain relationship between self-concept and performance.
Point out that self-concept is essentially the thoughts that we have about ourselves.

B. Introduction to hypnosis - Discuss misconceptions, nature of hypnosis; depth; hypnosis based on belief, faith, confidence; resistance, etc.

C. Four part hypnotic induction

D. Hypnotic imagery (and establishment of sensory hallucinations) used to facilitate performance and control of physiological processes associated with muscular growth.

Session #2

A. Review of cognitive model

B. Self Directed Behavior Change Instrument
   1) pass out instruments
   2) explanation of exercise
   3) completion of exercise identifying and modifying situations related to negative emotional states (especially performance)

C. Four part hypnotic induction

D. RSDH - Modifying negative cognitions and accompanying states via hypnosis, previously identified by the Self Directed Change Instrument

E. Hypnotic imagery (and use of sensory hallucinations) used to facilitate performance and control of physiological processes associated with muscular growth.
Session #3

A. Identification of negative self-referring statements (self-concept) using TSCS profiles to suggest some areas of negative ideation.

B. Pass out Self Directed Change Instrument and use it as a framework to identify the negative self-referring statements.

C. Four part hypnotic induction

D. RSDH - Modifying negative cognitions and accompanying states via hypnosis, previously identified by the Self Directed Change Instrument

E. Hypnotic imagery (and use of sensory hallucinations) used to facilitate performance and control of physiological processes associated with muscular growth.

Session #4

A. Identification of negative ideation associated with subnormal performance as suggested by previous research.

B. Pass out Self Directed Instrument and use it as a framework to identify personal negative ideation associated with subnormal performance.

C. Four part hypnotic induction

D. RSDH - Modifying negative cognitions and accompanying states via hypnosis, previously identified by the Self Directed Instrument

E. Hypnotic imagery (and use of sensory hallucinations) used to facilitate performance and control of physiological processes associated with muscular growth.
Summary

Chapter III presented sections on the selection of instruments, selection of the sample, design, and description of the treatments.

Chapter IV will present the statistical design, the statistics used, and the analysis of data.
CHAPTER IV

ANALYSIS OF DATA

The analysis of data will be presented in this chapter. This will be undertaken to examine the hypotheses set forth in Chapter I. Specifically are the effects of Rational Stage Directed Hypnotherapy (RSDH) superior to those of Cognitive Restructuring (CR), Hypnosis only (HO), and Control (C) on overall self-concept as measured by TSCS, anxiety as measured by the STAI, muscular growth as measured by dominant arm and chest measurement, and neuro-muscular performance as measured by prone barbell press. Also are the effects of CR and HO superior to the control condition on the aforementioned dependent measures.

The experimental design was a 4 x 3 between (groups - RSDH, CR, HO, C), within (time of measurement - pre, post I, post II) factorial. At each time of measurement six dependent measures were taken (self-concept, state anxiety, trait anxiety, dominant arm measurement, chest measurement, prone barbell press).

The statistical design involved performing an anova on the main effects for groups (on grand means). If significant results were obtained then three planned comparisons would be conducted (RSDH vs. Control + HO + CR; CR vs. HO; Control vs. CR + HO). Next main effects for repeated measures was examined. If significant two planned comparisons
would be conducted (pre vs. post I + post II; post I vs. post II). Finally an analysis of the interaction between groups and repeated measures was undertaken. If significant three comparisons would be conducted (RSDH vs. Control + HO + CR; CR vs. HO; Control vs. CR + HO).

Statistical computations were performed by the CANOVA program (Poor, 1973) based on the Multivariate Analysis of Variance (MANOVA) program (Clyde, 1969). CANOVA performs univariate and multivariate analysis of variance based on a least squares solution (linear model). Where appropriate, MANOVA's were performed on the dependent variables supplemented with individual ANOVA's on each dependent variable. The multivariate F ratios are approximate F ratios obtained by RAO's approximation based on Wilk's Lambda criterion.

No significant differences were detected by analysis of variance for the main effect of groups on the grand means. Univariate F tests on each dependent variable were all nonsignificant. Because no main effect for groups was detected, no specific comparisons on this factor were made. This likely indicates that the subjects in each group did not systematically differ (upon assignment) on any of the dependent measures.

A significant main effect for repeated measures was detected. The MANOVA produced an F ratio = 3.93, DF = 12/14, p > .01 (see Table 2 for univariate F's and marginal means).
TABLE 2
Marginal Means and Univariate F Tests for Individual Dependent Variables

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>PRETEST</th>
<th>POST I</th>
<th>POST II</th>
<th>F</th>
<th>P</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCS (self-concept)</td>
<td>332.07</td>
<td>339.17</td>
<td>343.70</td>
<td>8.92</td>
<td>.01</td>
<td>2.24</td>
<td>N.S.</td>
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<tr>
<td>State Anxiety</td>
<td>47.70</td>
<td>43.33</td>
<td>41.88</td>
<td>11.26</td>
<td>.01</td>
<td>.85</td>
<td>N.S.</td>
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<tr>
<td>Trait Anxiety</td>
<td>45.10</td>
<td>40.51</td>
<td>42.30</td>
<td>6.75</td>
<td>.05</td>
<td>.18</td>
<td>N.S.</td>
</tr>
<tr>
<td>Chest Measurement</td>
<td>42.59</td>
<td>42.79</td>
<td>42.76</td>
<td>6.06</td>
<td>.05</td>
<td>.05</td>
<td>N.S.</td>
</tr>
<tr>
<td>Arm Measurement</td>
<td>15.44</td>
<td>15.53</td>
<td>15.61</td>
<td>9.00</td>
<td>.01</td>
<td>9.92</td>
<td>.01</td>
</tr>
<tr>
<td>Prone Barbell Press</td>
<td>265.84</td>
<td>270.96</td>
<td>274.17</td>
<td>11.86</td>
<td>.01</td>
<td>7.08</td>
<td>.05</td>
</tr>
</tbody>
</table>
A significant effect for the interaction between groups and repeated measures was obtained on the univariate analysis for the dependent measures. (These were obtained on the pre vs. post I + post II comparisons but not the post I vs. post II comparisons). TSCS produced an $F = 3.39$, $DF = 3/25$, $p > .05$. Trait anxiety produced an $F = 5.90$, $DF = 3/25$, $p < .01$. Chest measurement produced an $F = 3.28$, $DF = 3/25$, $p > .05$. Arm measurement produced an $F = 6.50$, $DF = 3/25$, $p > .01$. Bench press produced an $F = 0.33$, $DF = 3/25$, $p > .01$.

The interaction between groups and repeated measures can be decomposed into specific comparisons. The interaction between specific group comparison, RSDH vs. Control + HO + CR, and repeated measures yielded a significant MANOVA, $F = 4.43$, $DF = 1/25$, $p < .01$. (Refer to Table 3 for univariate F's and P's; refer to Figures 2 through 7 for graphic representation of the interaction between groups and repeated measures).
<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>PRETEST vs. POST I + POST II</th>
<th>POST I vs. POST II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>TSCS (self-concept)</td>
<td>9.97</td>
<td>.01</td>
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<tr>
<td>State Anxiety</td>
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<td>.05</td>
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<tr>
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<td>.01</td>
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<tr>
<td>Chest Measurement</td>
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<td>.01</td>
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<td>.01</td>
</tr>
<tr>
<td>Prone Barbell Press</td>
<td>25.23</td>
<td>.01</td>
</tr>
</tbody>
</table>
Figure 3. Treatment Effects of Groups Across Pre, Post I, and Post II on TSCS Total Self-Concept Score
Figure 4. Treatment Effects of Groups Across Pre, Post I, and Post II on State Anxiety Scores on the STAI
Figure 5. Treatment Effects of Groups Across Pre, Post I, and Post II on Trait Anxiety Scores on the STAI
Figure 6. Treatment Effects of Groups Across Pre, Post I, and Post II on Chest Measurements in Inches
Figure 7. Treatment Effects of Groups Across Pre, Post I, and Post II on Dominant Arm Measurements in Inches
Figure 8. Treatment Effects of Groups Across Pre, Post I, and Post II on Prone Barbell Presses in Pounds
The interaction between groups and repeated measures was also decomposed into two other specific group comparisons (CR vs. HO; Control vs. CR + HO). However, neither comparison yielded significant results.

In conclusion the RSDH group condition showed significance on all six dependent variables (TSCS, state anxiety, trait anxiety, chest measurement, arm measurement, prone barbell press) from pre test to post test I. Furthermore two dependent variables (TSCS, arm measurement) showed significance from post test I to post test II. The CR, HO and control conditions yielded no significance on the dependent measures across time of measurement. The effects of RSDH were significantly superior to all other conditions (CR, HO, and Control). CR, HO, and control conditions did not significantly differ from each other.
CHAPTER V

SUMMARY AND CONCLUSIONS

This investigation studies the effects of Rational Stage Directed Hypnotherapy (RSDH), Cognitive Restructuring (CR), and Hypnosis only (HO) on the modification of neuro-muscular performance, the facilitation of muscular growth, the reduction of anxiety and enhancement of self-concept. Neuro-muscular performance was operationalized as the subject's mean maximum prone barbell presses in pounds. Muscular growth was operationalized as the subject's mean dominant arm measures and chest measures in inches. Anxiety was operationalized as the subject's mean scores on the State-Trait Anxiety Inventory. Both state and trait anxiety were considered. Self-concept was operationalized as the subject's mean scores on the Tennessee Self Concept Scale total positive score.

Thirty-two volunteers (males) from the population at the Ohio State Barbell Club served as subjects for this study. (However, three subjects dropped out during the course of the study, leaving twenty-nine subjects). These subjects were randomly assigned to one of four treatment conditions.

The experimental design was a 4 x 3 between (groups - RSDH, CR, HO, Control), within (time of measurement - pretest, post test I, post test II) factorial. The statistical design involved an analysis of main
effects for groups. Next main effects for repeated measures was examined. Finally an analysis of the interaction between groups and repeated measures was performed. Where appropriate, the analysis was decomposed into specific planned comparisons. The CANOVA program, based on the MANOVA program, was used for data analysis.

The null hypothesis for this study was that means representing neuro-muscular performance, muscular growth, self-concept and anxiety from the treatment conditions (RSDH, CR, HO, Control) will not differ significantly across pre, post I and post II measurements. The alternative hypothesis was that means representing neuro-muscular performance, muscular growth, self-concept and anxiety will be superior for the RSDH group as compared to the HO, CR and control groups across the pre, post I, and post II measurements.

No significant differences were detected by analysis of variance for the main effect of groups. This likely indicates that the subjects in each group did not systematically differ on any of the dependent measures upon assignment. A significant main effect for repeated measures was detected by multivariate analysis. Univariate tests for individual dependent variables also yielded significant main effects for repeated measures on two dependent measures (dominant arm measurement and prone barbell press). A significant effect for the interaction between groups and repeated measures was obtained on the univariate analysis for dependent measures. The comparison (RSDH vs. CR + HO + Control) yielded a significant MANOVA. This comparison also yielded a significant univariate analysis on all dependent measures for pretest vs. post test I + post test II and two dependent measures (TSCS and arm
measurement) for post test I vs. post test II. Two other specific comparisons (CR vs. HO; Control vs. CR + HO), did not yield significant results.

The null hypothesis was rejected in that means representing the dependent variables from the treatment conditions (RSDH, CR, HO, Control) did differ significantly across pre, post I, and post II measurements. The alternative hypothesis, that means representing the dependent variables from the RSDH condition will be significantly superior to the HO, CR and control conditions across pre, post I and post II measurements was accepted. However, the HO and CR conditions were not significantly superior to the control condition.

DISCUSSION

The RSDH group showed significance on all six dependent measures representing self-concept, anxiety, muscular growth, and neuro-muscular performance from pretest to post test I. Furthermore, self-concept and muscular growth showed significance from post test I to post test II, a time period in which no treatment was conducted. The other treatment groups (CR, HO, Control) had no statistically significant effect on the dependent measures across time of measurement. The RSDH group was statistically superior to all other conditions, (CR, HO, Control). CR, HO and control conditions did not significantly differ from each other.

A significant interaction between the RSDH group and time of measurement as compared to the CR, HO and control groups was noted on the TSCS total positive score (total self-concept). This effect was significant at post I and post II. These results suggest that RSDH had the
immediate effect of increasing the subject's self-concept, and this effect was further heightened over time even in the absence of additional therapy. This finding is consistent with other research using a similar approach (Rational Stage Directed Imagery; Reardon and Tosi, 1977) which found increases in self-concept immediately after treatment and one month later during which no treatment had occurred. These findings may indicate that RSDH teaches a self-control technique with integrative and generalization effects operating beyond the scope of treatment. The HO and CR groups showed a very mild, nonsignificant improvement in self-concept across pre, post I and post II.

A significant interaction between the RSDH group and time of measurement as compared to the CR, HO, and control conditions was observed on state anxiety and trait anxiety. The effect was significant at post I and maintained but not enhanced at post II. This suggests that RSDH has the immediate effect of reducing the propensity towards anxiety and this effect is maintained over time. This finding is consistent with other research (Boutin and Tosi, 1977) which suggests that RSDH is effective in reducing anxiety. The CR and HO conditions also demonstrated a modest, nonsignificant effect in reducing anxiety with the HO condition showing a stronger effect.

A significant interaction between the RSDH group and time of measurement as compared to the CR, HO and control conditions was observed on dominant arm measurement and chest measurement. The effect was significant for both dominant arm measurement and chest measurement at post I and for arm measurement at post II. This suggests that the RSDH condition is effective in controlling or modifying physiological processes.
(i.e. increased blood flow) associated with increased muscular growth. The use of rich hypnotic imagery was added to the basic RSDH approach to facilitate this process. Furthermore RSDH subjects were encouraged to daily practice self-imagery techniques (designed to facilitate muscular growth). This may partially account for the strong positive effects demonstrated following treatment (post I) and a month after the discontinuation of treatment (post II). These effects, approximately a .5 inch gain in both chest and arm measurement, are especially significant in light of the short treatment period (4 weeks) and lack of significance (barely an absolute numeric gain) in all other treatment conditions. The use of hypnosis to positively modify various physiological processes is consistent with the available research (Kroger, 1976).

A significant interaction between the RSDH group and time of measurement as compared to the CR, HO and control conditions was observed on the prone barbell press. The effect was significant at post I (+ 23 pounds) and was also demonstrating an absolute but statistically non-significant gain at post II (+ 3 pounds). This suggests that the RSDH condition is effective in modifying neuro-muscular performance. A pilot study (Howard and Reardon, 1978), using a modified RSDH procedure, also found this approach effective in modifying neuro-muscular performance. The CR condition demonstrated a mild, statistically nonsignificant, effect in increasing neuro-muscular performance.

CONCLUSIONS AND RECOMMENDATIONS

Some tentative conclusions based on the limitations of this study are drawn below:
1. RSDH subjects showed statistically significant improvement on the dependent variables (enhanced self-concept; reduced anxiety; increased muscular growth; improved neuro-muscular performance) at post I measurement as compared to subject's in the CR, HO, and control conditions. These improvements were sustained and even enhanced over time (self-concept and muscular growth showed statistical significance at post test II) despite the discontinuation of treatment. Since both the hypnosis only (HO) and cognitive restructuring approaches (CR) did not demonstrate significance, it seems that combining hypnotic relaxation and hypnotic imagery with cognitive restructuring approaches (RSDH), enhances both the immediate and long range integrative, generalization effects of RSDH over more traditional approaches. The present findings are consistent with previous research on RSDH (see literature review) which suggests that this approach can successfully be applied to both clinical and nonclinical populations. RSDH has demonstrated efficacy in modifying complex cognitive, affective, physiological and behavioral states.

2. RSDH (Tosi, 1974; Tosi and Marzella, 1975) was designed to attend to a number of human variables and their intricate relationship concurrently. In the present study consistent statistical significance was found on variables representing several levels of human functioning. The strong positive results obtained in this study may be related to the rather dynamic nature of RSDH. Although the primary goal of this study was
to enhance performance, self-concept, emotional states, and physiological processes were also attended to. A logical conclusion of this finding is that when treating a specific psychological disorder, the therapist may be most effective when attending to several levels of human functioning.

3. Self-concept, considered a very stable psychological entity (Fitts, 1963; Rainey, 1975) was significantly modified by RSDH over a relatively brief period of time (4 weeks). This finding is contrary to much of the repeated research, but is consistent with previous research on this approach (Reardon and Tosi, 1977). It suggests that Rational Stage Directed Hypnotherapy has considerable potential as a therapeutic approach for self-concept modification.

4. Both neuro-muscular performance and physiological processes associated with muscular growth were positively modified by RSDH. It suggests that an integrated cognitive-hypnotic approach has potential in modifying certain human processes which were previously considered to be beyond learned, voluntary control. Furthermore, subjects may be able to control and monitor processes such as arousal level, blood flow etc. by learning self-imagery techniques. This approach was particularly effective in modifying athletic performance in the current study, but may also have application to other areas of neuro-muscular performance. (For instance, relearning to use injured body functions after nerve or muscle damage).
The conclusions listed above must be considered in light of the current study and its specific limitations. Generalizations to other problem areas and populations are only aids in stimulating further thought and research and are not valid scientific conclusions. However, based on the current research, Rational Stage Directed Hypnotherapy seems to have valuable potential in modifying several levels of human functioning. Further studies are needed to examine the various variables of change in RSDH (i.e. hypnosis, imagery, cognitive restructuring) and its application to other populations and problems. The present findings seem to indicate that RSDH, though not a catchall remedy for all psychological disturbances, is nonetheless a powerful therapeutic approach in its own right.
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APPENDIX A

TENNESSEE
SELF CONCEPT SCALE

by
William H. Fitts, PhD.

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Counselor Recordings and Tests
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Nashville, Tennessee 37212
<table>
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<th>ITEM NO</th>
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TENNESSEE SELF CONCEPT SCALE

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SALVAR R. PITHUR
### Score Sheet

#### Columns:
- Column A: Physical Self
- Column B: Moral-Ethical Self
- Column C: Personal Self
- Column D: Family Self
- Column E: Social Self
- Column F: Critical Self

#### Total Scores:
- Column A: 444
- Column B: 484
- Column C: 433
- Column D: 485
- Column E: 455
- Column F: 493

#### Total Row Scores:
- Row 1: 423
- Row 2: 463
- Row 3: 473

#### Distribution of Responses:
- Total Responses: 100

#### Empirical Scales:
- DF = __
- GM = __
- P = __
- N = __

#### Published by:
- Psychological Services and Tests
- Linkedin: 100

---

*Note: The image contains a score sheet with various columns and rows, each containing numerical scores. The sheet is used to assess different aspects of an individual's self-perception, such as physical, moral-ethical, personal, family, and social selves.*
INSTRUCTIONS

On the top line of the separate answer sheet, fill in your name and the other information except for the time information in the last three boxes. You will fill these boxes in later. Write only on the answer sheet. Do not put any marks in this booklet.

The statements in this booklet are to help you describe yourself as you see yourself. Please respond to them as if you were describing yourself to yourself. Do not omit any item. Read each statement carefully; then select one of the five responses listed below. On your answer sheet, put a circle around the response you chose. If you want to change an answer after you have circled it, do not erase it but put an X mark through the response and then circle the response you want.

When you are ready to start, find the box on your answer sheet marked time started and record the time. When you are finished, record the time finished in the box on your answer sheet marked time finished.

As you start, be sure that your answer sheet and this booklet are lined up evenly so that the item numbers match each other.

Remember, put a circle around the response number you have chosen for each statement.

<table>
<thead>
<tr>
<th>Completely false</th>
<th>Mostly false</th>
<th>Partly false</th>
<th>Mostly true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

You will find these response numbers repeated at the bottom of each page to help you remember them.
1. I have a healthy body

3. I am an attractive person

5. I consider myself a sloppy person

19. I am a decent sort of person

21. I am an honest person

23. I am a bad person

37. I am a cheerful person

39. I am a calm and easy going person

41. I am a nobody

55. I have a family that would always help me in any kind of trouble

57. I am a member of a happy family

59. My friends have no confidence in me

73. I am a friendly person

75. I am popular with men

77. I am not interested in what other people do

91. I do not always tell the truth

93. I get angry sometimes

<table>
<thead>
<tr>
<th>Responses</th>
<th>Completely false</th>
<th>Mostly false and partly true</th>
<th>Mostly true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
2. I like to look nice and neat all the time

4. I am full of aches and pains

6. I am a sick person

20. I am a religious person

22. I am a moral failure

24. I am a morally weak person

38. I have a lot of self-control

40. I am a hateful person

42. I am losing my mind

56. I am an important person to my friends and family

58. I am not loved by my family

60. I feel that my family doesn't trust me

74. I am popular with women

76. I am mad at the whole world

78. I am hard to be friendly with

92. Once in a while I think of things too bad to talk about

94. Sometimes, when I am not feeling well, I am cross

<table>
<thead>
<tr>
<th>Responses</th>
<th>Completely false</th>
<th>Mostly false</th>
<th>Partly false and partly true</th>
<th>Mostly true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
7. I am neither too fat nor too thin
9. I like my looks just the way they are
11. I would like to change some parts of my body
25. I am satisfied with my moral behavior
27. I am satisfied with my relationship to God
29. I ought to go to church more
43. I am satisfied to be just what I am
45. I am just as nice as I should be
47. I despise myself
61. I am satisfied with my family relationships
63. I understand my family as well as I should
65. I should trust my family more
79. I am as sociable as I want to be
81. I try to please others, but I don't overdo it
83. I am no good at all from a social standpoint
95. I do not like everyone I know
97. Once in a while, I laugh at a dirty joke

Responses  Completely false  Mostly false  Partly false and partly true  Mostly true  Completely true
1  2  3  4  5
8. I am neither too tall nor too short

10. I don't feel as well as I should

12. I should have more sex appeal

26. I am as religious as I want to be

28. I wish I could be more trustworthy

30. I shouldn't tell so many lies

44. I am as smart as I want to be

46. I am not the person I would like to be

48. I wish I didn't give up as easily as I do

62. I treat my parents as well as I should (Use past tense if parents are not living)

64. I am too sensitive to things my family say

66. I should love my family more

80. I am satisfied with the way I treat other people

82. I should be more polite to others

84. I ought to get along better with other people

96. I gossip a little at times

98. At times I feel like swearing

<table>
<thead>
<tr>
<th>Responses</th>
<th>Completely false</th>
<th>Mostly false</th>
<th>Partly false and partly true</th>
<th>Mostly true</th>
<th>Completely true</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
13. I take good care of myself physically

15. I try to be careful about my appearance

17. I often act like I am "all thumbs"

31. I am true to my religion in my everyday life

33. I try to change when I know I'm doing things that are wrong

35. I sometimes do very bad things

49. I can always take care of myself in any situation

51. I take the blame for things without getting mad

53. I do things without thinking about them first

67. I try to play fair with my friends and family

69. I take a real interest in my family

71. I give in to my parents. (Use past tense if parents are not living)

85. I try to understand the other fellow's point of view

87. I get along well with other people

89. I do not forgive others easily

99. I would rather win than lose in a game

<table>
<thead>
<tr>
<th>Responses</th>
<th>Completely false</th>
<th>Mostly false and partly true</th>
<th>Mostly true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
14. I feel good most of the time
16. I do poorly in sports and games
18. I am a poor sleeper
32. I do what is right most of the time
34. I sometimes use unfair means to get ahead
36. I have trouble doing the things that are right
50. I solve my problems quite easily
52. I change my mind a lot
54. I try to run away from my problems
68. I do my share of work at home
70. I quarrel with my family
72. I do not act like my family thinks I should
86. I see good points in all the people I meet
88. I do not feel at ease with other people
90. I find it hard to talk with strangers
100. Once in a while I put off until tomorrow what I ought to do today

<table>
<thead>
<tr>
<th>Responses</th>
<th>Completely false</th>
<th>Mostly false and partly true</th>
<th>Mostly true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1</td>
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<td>4</td>
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</tbody>
</table>
APPENDIX B

STATE-TRAIT ANXIETY INVENTORY

("Self-Evaluation Questionnaire.")

By

Charles D. Spielberger
Richard L. Gorsuch
Robert E. Lushene
SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME ___________________________ DATE ______________________

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.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not At All</th>
<th>Somewhat</th>
<th>Moderately So</th>
<th>Very Much So</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel calm.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I feel secure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I am tense.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I am regretful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I feel at ease.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I feel upset.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I am presently worrying over possible misfortunes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I feel rested.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I feel anxious.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I feel comfortable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I feel self-confident.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I feel nervous.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I am jittery.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I feel &quot;high strung&quot;.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I am relaxed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I feel content.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I am worried.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. I feel over-excited and &quot;rattled&quot;.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I feel joyful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. I feel pleasant.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
# Self-Evaluation Questionnaire

**STAI Form X-2**

**Name _____________________________ Date _____________________________**

**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.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I feel pleasant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I tire quickly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. I feel like crying.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. I wish I could be as happy as others seem to be.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. I am losing out on things because I can't make up my mind soon enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. I feel rested.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. I am &quot;calm, cool, and collected&quot;.</td>
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<td></td>
<td></td>
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<tr>
<td>28. I feel that difficulties are piling up so that I cannot overcome them.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. I worry too much over something that really doesn't matter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. I am happy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. I am inclined to take things hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. I lack self-confidence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. I feel secure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. I try to avoid facing a crisis or difficulty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. I feel blue.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. I am content.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Some unimportant thought runs through my mind and bothers me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. I take disappointments so keenly that I can't put them out of my mind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. I am a steady person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40. I get in a state of tension or turmoil as I think over my recent concerns and interests.</td>
<td></td>
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</tbody>
</table>
APPENDIX C

Introduction of Hypnosis

William S. Kroger, M. D.
INTRODUCTION TO HYPNOSIS

"Physicians, dentists, and clinical psychologists are becoming seriously interested in medical hypnosis, which is not a state of 'trance,' 'sleep,' or 'unconsciousness.' Rather, it is an exaggerated state of being awake! More simply, it is selective attention to my words, with selective inattention to distracting noise and everything else around you. Now, if you wish to relax, imagine and feel all of my suggestions. Do not try too hard. Just try to concentrate on my suggestions to the best of your ability. Don't press, just relax! Remember that if you do this you will relax, and then, the better you relax, the better you will concentrate on what I am saying. As a result, you will respond more effectively to those suggestions which are for your benefit.

"Medical hypnosis is different from entertainment hypnosis. The entertainer-hypnotist makes you think that he hypnotizes you because he is a powerful person. Physician-hypnotists know that hypnosis is effective because of the patient's desire and expectant attitude. The physician uses this tool with respect, realizing that every patient is an individual personality who should be treated with dignity both in and out of hypnosis.

"I really do not hypnotize you, and I have never hypnotized a single human being in my life! However, many individuals have entered into deep hypnosis because they really wanted to do so. I cannot make you close your eyes by suggesting eye closure unless you wish to close your eyes. I cannot make you count to yourself if you do not wish to count. And I have no way of knowing whether or not you are counting to
yourself. I cannot make you lift your arm, if you do not care to lift it. Our relationship, therefore is a cooperative one and not a mental 'tug of war.' For instance, you will raise your arm, not because you have to, but because you want to. Also, if I suggest that you drop your arm limp, relaxed, that is the way it will drop -- limp." (The operator can lift the arm and let it slip from his fingers. If the arm is relaxed, he can remark, "That's just the way you will relax.")

"Hypnosis is a learning process and, of course, as in any other learning procedure, one begins with very simple suggestions. Isn't that logical? And if you follow the simple suggestions, then naturally you will follow complicated ones. May I repeat, you will not really be in a trance, even though we refer to it as such for want of a better term.

"Actually, we are being hypnotized continually as a part of everyday life. When I sit in a rowboat, fishing, the monotonous ripples relax me and time passes by rapidly. The first thing I am apt to say is, 'Have I been here for 6 hours?' It seemed like 3 hours, because a part of that time I was in reverie. Or how many times have you been in a theater, engrossed in a movie? As you looked at that screen, you became fixated on the movie and registered all types of emotions just as if it was real. You forgot who was sitting on your left and who was sitting on your right. Because you identified with the picture on the screen, you may even have forgotten what city you were in at the time. Next time you are at the theater, turn around and notice the 'glassy' stare in everyone's eyes. Of course, after it was over, you realized that what made you cry and laugh was not reality. Yet, for an hour and
and a half, you reacted to what you saw and heard as if it was real -- yet it was an illusion. In other words, you were 'entranced,' but you did not think of this as hypnosis. However, is this any different from what happens when a stage hypnotist tells you that you will itch because 'ants' are crawling all over your body?

"Attainment of deep relaxation is easy, if you follow my suggestions. The capacity to be deeply relaxed is already present within you. I merely bring it to the surface, and only act as a guide. Is that clear?"

"You will do nothing to violate your moral code; you will not reveal information of a personal nature unless you wish to do so; you will be completely aware of what is said; and you will not act contrary to your wishes. Finally, every suggestion will be for your benefit."

(Kroger, 1977)
APPENDIX D

Four Part Hypnotic Induction
PART I: Deep Breathing

Start taking in deep breaths and feel the air circulating around your lungs to the very pit of your stomach. Breathe deeply and continue to inhale relaxation so that with each deep breath that you take, you find yourself becoming very relaxed...and very comfortable. Concentrate on becoming relaxed; on inhaling relaxation, and exhaling tension. So that with each deep breath that you take, you find that you are becoming very...very relaxed...and very...very comfortable. Your eyes may feel heavy, and if they are not already closed, you might allow them to do so...and as you do, you find yourself becoming even more comfortably relaxed. You may notice outside noises and talking, but nothing will bother you...nothing will effect your becoming very deeply...comfortably...relaxed, so that with each deep breath that you take, you find yourself slipping deeper and deeper into relaxation. You find yourself becoming very relaxed...further relaxed...deeply relaxed....You find yourself in a very comfortable...a very warm...a very relaxed state...a very deeply relaxed state....I want you to stop your deep breathing now and concentrate on the second part of our relaxation process...the muscle relaxation.
PART II: Cognitive Muscle Relaxation

I want you to concentrate on allowing all of the muscles in your body to become completely relaxed. You will find as you let your muscles relax, you can get even deeper into relaxation.

Concentrate now on all of the muscles in your forehead; feeling them losing tension...becoming very, very soft and relaxed...absolutely relaxed and comfortable. With all the muscles in your forehead relaxed, I want you to allow the relaxation to spread through your face...around your eyes, and chin...around your mouth and nose...so that every muscle in your face is becoming very softly, beautifully, and pleasantly relaxed. As each muscle relaxes, the relaxation very easily flows to the next set of muscles, and you find yourself becoming even more exquisitely relaxed.

Now with all the muscles in your face relaxed, concentrate on all of the muscles in your neck....Allow them to become relaxed....Allow every muscle to relax. There is no need for any tension...your neck muscles are very...very relaxed. Now, with all of the muscles in your neck relaxed, concentrate on allowing your shoulders and back to become very relaxed....You can feel these very powerful muscles relaxing...a feeling of comfort comes over you...from your shoulders to your back...around your sides...to your chest. Your muscles automatically relax....As you concentrate on allowing them to become even more relaxed...
they do so. Your chest wall moves effortlessly up and down...up and down...you can feel it floating as you become absolutely relaxed. You may be experiencing a very warm and a very comfortably floating sensation...a very safe feeling. Now, with each muscle in your chest absolutely relaxed...beautifully relaxed, concentrate on all the muscles in your arms.

Allow your upper arms to become relaxed, to lose any tension that might be left...your lower arms are becoming very relaxed and the relaxation seems to flow through your fingers...and you are finding yourself very comfortably...very beautifully, very softly relaxed.

Now with every muscle in the entire upper half of your body very, very relaxed, concentrate on allowing every muscle in the lower half of your body to become completely and totally relaxed. Starting with all the muscles in your hips and going to your knees, allow every muscle in your hips to become very relaxed...very comfortably relaxed. You can feel your strong thigh muscles becoming soft and comfortable...becoming very relaxed. The muscles feel like they are just hanging on your bones...they are completely relaxed. Now concentrate on the lower half of your legs becoming relaxed. From your knees to the tips of your toes, you find yourself in a very deep state of relaxation; a very deep and pleasant state...a very beautiful and comfortable state.

As you are in this very relaxed comfortable, safe, state you will find that you can go very easily and automatically into the third stage of relaxation which is the scene we discussed earlier.
PART III: Counting for Deepening

I'm going to count from 10 to 1 backwards. Each time I say a number relax yourself more and more. 10...9...8...deeply relaxed...7...6...5...more and more relaxed...4...3...2...deeper and deeper into relaxation...1...very relaxed.

PART IV: Description of Scene

The particular scene described to the subject is important in that it includes the following four essential elements:

(1) The scene should include a very serene setting which is loosely described by the therapist, e.g., a nature setting, or a peaceful seashore.

(2) A rhythm must be established using some facet of the scene, e.g., the waves are rolling, rolling, rolling, into the shore, in and out...in and out...

(3) Suggestions must be given that elicit peace, comfort, and serenity, as well as, the visualizing and hearing of sights and sounds within the scene, e.g., you find yourself at peace and extremely comfortable, so that you can actually see and possibly even hear the gulls gracefully floating overhead...

(4) Direct suggestion that it is easy for the S to experience the scene is important, e.g., you are more able to get into the scene...becoming more relaxed...as you get into it more, the details become clearer to you...there is no need for any tension...only relaxation.

The therapist must be careful not to describe the scene too rigidly, because his suggestions may conflict with the subject's projections, thereby lessening the relaxation rather than deepening it. After the scene has been described, the therapist says:

I will let you savor and enjoy this relaxation for a moment, then I will count to five and you will awaken. You will feel inevitably much more refreshed and relaxed and able to carry on throughout the rest of the
day (evening) in a very relaxed and very attentive state....

I am now going to wake you by counting to five and you will feel very good...1...2...3...4...5...
APPENDIX F
COGNITIVE RESTRUCTURING

The following is a transcript of the Cognitive Restructuring Treatment Presentation. Due to the length of the actual transcript, only parts of the original transcripts are included in this appendix. However, all relevant and important parts are listed below.

The following is the introduction to Cognitive Restructuring presented in Session 1:

This treatment presentation involves the use of what is commonly called Cognitive Restructuring. Those of you who have studied psychology may be familiar with what is called Rational Emotive Therapy, developed by Albert Ellis. Both of these positions; that is, Cognitive Restructuring or Rational Emotive Therapy work under the premise that negative irrational beliefs are associated with negative emotional and behavioral consequences. That is, beliefs that are unscientific, magical or negativistic are often associated with poor performance and negative emotional responses. By changing our negative irrational, unscientific or magical beliefs, we can begin to control our own emotional, physiological and behavioral responses.

Most people believe that the environment, other situations, and other people, etc. cause us to feel certain ways. However, considerable research indicates that that is not the case. The research indicates that in fact our emotional, physiological and behavioral responses are generally governed by our own thinking and perception of other situations and not the actual situation itself. Dr. Ellis has developed a simple educational model to bring across this point. This model will be elaborated on and expanded in an exercise which we will do later. Let us lay out this model now. Let us call the environment or the situations which we interact with A. Now this may include interaction with parents, with school, with work, with our athletic environment, etc. B will be our thoughts, attitudes, perceptions or beliefs about ourselves and the world. C will be our emotional responses such as anger, frustration, hostility, happiness, etc. Most people believe that A, the situation causes C, the emotional response. However, this is not the case. It is actually B, the
thought processes which are associated with emotions. For instance, if someone calls us a name, "hey, you're a real punk." We typically say that "that guy called me a name and I'm mad at him. He made me mad." We then have a need to strike out against this individual. If we tell ourselves that this individual is a bad, horrible person and I need to strike out against him to get back at him, we will probably get very angry and in fact may strike out. However, if we tell ourselves "I don't really need to react to this individual's stupid assessment of me. He may be acting-out of his own inferiority or some other reason, but me getting upset at him will not solve anything," will lead to a different type of reaction. In this latter instance, we will not work ourselves up and get upset. It is how we react to the situation that determines our emotions and not what someone tells us.

Take another example: Let's say that you're in a classroom and the teacher cancels class. The teacher says that the class is canceled and people have various reactions. Some people are upset because they feel they have paid a lot of money for this class and they want to be taught. Other people are very happy because they don't want to be in class today, it's a sunny day outside. Finally, some people do not really have a strong reaction either way. In this situation, the environment, that is the teacher dismissing class, is the same but we have many different emotional reactions. These emotional reactions are attributed to how each individual evaluated the situation. We cannot only learn to control our emotional and behavioral responses, but we can also learn to control our physiological responses. That is, people have learned various techniques to control their blood flow, to control their blood pressure, and their heart beat, etc. So, it is our thinking and thoughts that govern our emotional and behavioral responses.

Let us take the example of an individual approaching an athletic competition. Let us say this individual is a weight lifter involved in an important competition. He is lifting an extremely heavy amount of weight, let's say 300 lbs. If he tells himself, "oh, this weight is so heavy, I don't know if I can lift it and if I fail I'll be so embarrassed and everyone will make fun of me," chances are this individual will not make the weight successfully. However, if he tells himself "I need to concentrate on the weight I'm lifting, I need to focus all my energy on this weight and not worry about distractions," this individual may perform better.

Another example in which our attitudes, thoughts, and beliefs effect our performance is let's take a situation of an individual climbing a high mountain. This individual is on a cliff and there is only a narrow amount of area for him to walk across the cliff. The individual begins to say "I'm very afraid, I'm going to fall, I'm going to mess up here and slip," he begins to
shake and get all nervous and probably will fall. However, if this same individual tells himself that "I need to concentrate, I need to focus all my energy on walking across this narrow cliff," chances are this individual will successfully navigate this situation.

Now the self-concept is the attitudes, the beliefs, the feelings that we have about ourself and our ability to perform in the world. Our self-concept is simply the collection of attitudes and beliefs that we have about ourselves. This can be highly negative or positive. The research says that our self-concepts affects our ability to perform, the better our self-concept is the better our performance will be. And, if we take two people of equal ability, the one with the higher self-concept will generally out-perform the other on any given particular performance.

So, as you can see, it is very important to maintain a positive self-concept in order to perform efficiently and effectively. Now, since self-concept is simply the attitudes we have about ourselves, we can often change or restructure these attitudes by substituting the negative attitudes with more positive attitudes about ourselves. If we do this, our general emotional and behavioral states will probably improve.

If we are depressed and upset and telling ourselves we are inadequate and inferior people, we are going to go to our workouts feeling down and depressed and we're not going to focus well and the result will be poor performances. However, if we are feeling positive and confident about ourselves we will be able to reach the outer limits of our potential.

Thus, it is very important for us to identify whenever we are saying self-defeating or negative irrational, unscientific or magical beliefs to ourselves about ourselves. We need to challenge these negative irrational beliefs and we need to substitute more rational beliefs. That is, whenever we catch ourselves telling ourselves things like "I'm no good, I'm inferior, I'm going to mess this up, I can't handle this situation, I'm not as good as other people," etc., etc., we need to challenge these beliefs because they inevitably lead to poor performances on our behalf to what is called a self-fulfilling prophecy. A self-fulfilling prophecy is we tell ourselves we are no good, we are inferior, we are horrible creatures and we go out and perform inferiorly and horribly. Then we fulfill our own prophecy about ourselves.

Session 2 begins with a general review and a simple reiteration of the points made in Session 1 about Cognitive Restructuring and Self-Concept. After that, the individuals are told that they will complete
an exercise in which they will identify their own negative emotional and behavioral states and identify the irrational beliefs associated with these states. They are told that after identifying this they will learn to restructure these negative tendencies with more positive tendencies. The Cognitive Restructuring Instrument (self-directed change instrument) is then passed out and the tape is turned off. After the exercise is completed the tape is turned back on and the individual's are told the following:

Now that you have learned to identify and restructure your own negative thought, emotion, and behavioral tendencies, it is important that you begin to apply this to real life situations. Whenever you find yourself disturbing yourself needlessly whether it be in your athletic performances or in your every day life, it is important for you to restructure this experience so that you gain more control over your life.

Try to catch yourself whenever you are engaging in irrational thought and negative emotional states, identify what you are telling yourself, observe how ineffectively you perform when you tell yourself these negative states, then substitute more rational beliefs which you have learned from the exercises you have performed during this treatment, and after you do this, notice how you perform more effectively. Do this as often as you can.

Session 3 begins with a talk on the relationship between self-concept and negative performances:

If you will recall from our earlier discussion on self-concept, self-concept is simply a collection of statements about ourselves that we make in regard to our ability to function within the world and our negative or positive view of ourselves. Thus, since self-concept is simply a collection of statements about ourselves, it fits in conveniently with our Cognitive Restructuring model. If we learn to substitute more positive rational beliefs for the irrational beliefs that we often tell ourselves, we may in fact be able to change our self-concept in a positive direction. Also recall that as self-concept increases generally so does our performance in many different areas. Also, if we take two individuals of equal performance ability, and give them a common task, the one with the higher self-concept generally will perform better.
Now there are a number of ways of engaging in negative or irrational talk about ourselves. For instance, many of us observe ourselves performing in certain situations and if we fail, we belittle or berate ourselves. We tell ourselves we are not as good as other people, we are inferior, that we're stupid, we're dumb, that we can't do as well as anyone else, etc., etc., etc. For instance, take the example of an individual who gets a C in a class instead of an A or who finished third in an athletic competition instead of first. We often conclude that because we perform inferiorly to other people we are therefore inferior people. However, this is not the case. What we are doing is confusing our worth with our performance. We must learn to accept ourselves as worthy people simply because we exist and we have the opportunity to enjoy and experience life. Our performances are not related to our worth. We can rate our performances as good or bad but we ought not rate ourselves as worthy or unworthy in regard to our performances. Anyway, the more we rate ourselves the chances are we may end up in situations where we are going to feel inferior or superior and we will disturb ourselves endlessly because of these tendencies. It is, therefore, better to accept ourselves for what we are without having continual proof of how good we are.

Now there are other ways of disturbing ourselves or telling ourselves negative things about ourselves. For instance, many people have failed in the past and made many mistakes. They then tell themselves that I will fail in the future because I have failed in the past. However, there is no connection between past failure and current performance unless we continue to tell ourselves or remind ourselves that we have failed in the past. This simply sets up distractions and increases the probability that we will in fact fail in the future.

I have examined your Tennessee Self-Concept profiles and several tendencies come to mind. I will list these and talk about these below. However, it will be your job when we pass out the self-directed behavior change instrument to identify the ways you disturb yourself and put yourself down therefore lowering your own self-concept. Now, back to the tendencies. It seems that many of us have not because of our current life status, that is being in college and studying and seeking a profession, it seems that we do not have a good sense of self or solid identity. Just because we haven't found an area to excel in or feel competent in at this point in time, doesn't mean that we won't in the future or that we are less of a human being because of this.

Other tendencies that were common in your profiles were that many of us seem to rate ourselves inferior physically. Now we are all involved in some sort of training to improve our current athletic and physical condition. By putting ourselves down
physically and telling ourselves that we are inferior and not as
good as we want to be we simply set up distractions and make it
harder for us to gain in our exercise and our conditioning ef-
forts. Therefore, we ought not put ourselves down because we feel
inferior physically. In fact, it is odd because many of you in
this room are involved heavily in athletic competition or training
and in fact are built better physically or are in better physical
shape than the average person. This really tells us that we have
developed an attitude over the years of physical inferiority which
is hard to drop even after we are not physically inferior. I en-
courage you all to consider this and to try to modify this atti-
tude in yourself.

Now, others of you seem to have a tendency to score low in
self-concept in the area of relationships with the family. Many
of you may have had conflict or unrest within your family situa-
tion when you were younger. However, this does not mean that you
are a horrible, terrible person because you didn't get along with
your parents or reverse because your parents didn't want you. It
simply means that there was conflict between people.

Now these are just some tendencies and they are very general
tendencies which were suggested by your Tennessee Self-Concept
profiles. It is now your job to take the self-directed behavior
change instrument and identify the ways in which you put yourself
down, lower your self-esteem, increase your inferiority, tell
yourself negative things about yourself or whatever. Use this in-
strument to first identify how you negatively evaluate yourself.
Determine how that effects you emotionally and behaviorally. Then
in the latter part of the exercise, restructure the attitudes
about yourself by substituting more rational beliefs and determine
the more self-enhancing emotional and behavioral states that will
follow.

At this point, the tape is turned off, the self-directed behavior
change instruments are passed out. After these instruments are com-
pleted, the tape is turned on and the individuals are encouraged to
apply Cognitive Restructuring techniques into their everyday life situa-
tions as reiterated at the end of Session 2.

Session 4 begins with a discussion of identifying irrational beliefs
associated with poor performance. This is listed below:

As we have talked about before, negative beliefs and atti-
tudes are often associated with poor performances. The individual
who lacks confidence in himself, who engages in many distractions and self-defeating talk often performs poorly. Now there are a number of ways that individuals distract themselves or tell themselves irrational beliefs about their performances. One that seems to be particularly specific to weight training is that people often dwell on a specific amount of weight, for instance 200-300-400 lbs. and actually develop mental barriers around this poundage. They approach the bar thinking, "Oh my God, this is 300 lbs., it is so heavy I don't know if I can make it." They distract themselves, they lessen their ability to focus and attend to task by doing this. Other people simply approach the bar and do not fully concentrate but seem to have a number of both internal and external distractions. For instance, some people tell themselves, "Oh, I'm going to miss this weight and if I miss it I'm going to be embarrassed. Everyone will think I'm a weak little person who can't lift these weights." Now with such attitudes like this, as you can see, the individual begins to focus on negative elements and loses his ability to concentrate and focus all his energy on lifting the heavy weight.

Now, in athletic performance, in order to perform optimumly, the individual needs to channel all his energy both physically and psychologically into his performances. Dwelling on negative aspects about himself or worrying about how the crowd is going to react to the people around him simply robs him of both psychological and physical energy. Individuals who also dwell upon past barriers or past performances set themselves up for future failures. For instance, "Oh, I tried this weight (300 lbs.) last week, it was heavy, I missed." If this individual approaches the current lifting situation with this attitude, he may set himself up for current failures. It is important whenever performing a task to try to focus all the energy available on the lifting without thinking about any sort of negative aspects of self or lifting. The individual needs to have total confidence in himself and concentrate only on what he has to do. Now this seems redundant and it seems awful simple but research suggests that Olympic and nationally ranked athletes have cognitive styles associated with their performances. These cognitive styles are very similar to positive self-ideation. That is, they tell themselves to focus only on their lifting, not to tell themselves anything negative about their own ability and not to worry about the reaction of others around them. They tell themselves that they need to focus all their energy and their attention at the task at hand; that is, the lifting.

Now, the self-directed behavior change instrument will be passed out and it is important for you to identify the negative attitudes and beliefs you tell yourself which are associated with your sub-normal or poor performances. Then restructure these attitudes and predict your better performances as a result.
The tape at this point is turned off and the self-directed behavior change instrument is passed out with the directions that the individuals are to identify the previously talked about negative attitudes associated with poor performance. After the tape is turned off and this task is finished the tape is once again turned on and again the individuals are encouraged to use Cognitive Restructuring techniques in their real life situations as exemplified at the end of Session 2.
The following is a transcript of the tape recorded presentation for the Rational Stage Directed Hypnotherapy condition. The entire transcript is not present, but all relevant material is included in this transcript. References will be made to other appendixes which contain relevant sections (for instance, the introduction to hypnosis is contained in Appendix C, the actual hypnotic induction is contained in Appendix D, the self-directed behavior instrument is contained in Appendix E).

The following is the introduction to Cognitive Restructuring presented in Session 1:

This treatment involves the use of Cognitive Restructuring. Some of you who studied psychology may be familiar with what is called Rational Emotive Therapy, developed by A"bert Ellis. Rational Emotive Therapy or Cognitive Restructuring operates under the premise that certain irrational beliefs are associated with negative emotional, physiological, and behavioral responses. By changing these irrational beliefs the individual may be able to control his own negative emotional or behavioral responses. Most people believe that their emotions are caused by the environment and not their own thinking. However, considerable research has indicated that in fact most of our emotional and physiological and behavioral responses are determined by our thinking and not the environment.

Dr. Ellis has developed a very simple model as an educational aid to explain this. This model will be elaborated on in an exercise that we will do here. Let us lay out this model. The environment we will call A, that is the situations which we interact in the world, for instance, school, work, family, etc. We will call B, our thinking, our thoughts or our attitudes or perceptions about ourself and the world. We will call C, our emotional responses such as anger, happiness, frustration.
Most people believe that A, the situation causes C, the emotional response. For instance, when someone calls us a name, like "hey, you're a real punk," we often get very angry and say "that person shouldn't have called me that name," and we attribute our anger to that person. However, when some people are called names they get angry, when other people are called names they don't care, there are a number of reactions to being called a name. These reactions in which the environment is always constant, are related to what we tell ourselves about this person calling us a name. For instance, if we say "oh, it really doesn't make any difference that this person is calling me a name, he really feels inadequate himself in calling me a name, it's just a hang-up of his," we probably won't have a real strong emotional reaction to this situation. However, if we say, "well that son of a so and so shouldn't have called me that name, I've got to get back at him," we'll probably get very angry and strike out at him in anger.

Think of a situation, let's say you are in class and the teacher dismisses the class for the day. The situation A, is the class that is being dismissed. Now at C, people have different emotional reactions to having the class called off. Some people will have emotional reactions of anger. I'm really upset the class is called off, other people will be very happy, oh great, I have a free day! Some people won't care at all. So, as you can see there are three different emotional reactions to the same environment.

So, you can see that our attitudes or thoughts of thinking can determine what we feel, and also how we perform. For instance, someone approaches a bar in a weight lifting competition and tells himself, "oh, I'm really afraid I'm going to fail, this bar is so heavy and if I miss, everyone will look at me and say I'm weak." With an attitude like that, the individual is likely to fail. However, another individual who tells himself, "I need to focus all my energy on my performance and not be concerned about the people in the crowd, I need to eliminate all distractions," will probably have a better chance of succeeding.

Or, if you picture an individual climbing a very tall, steep mountain. This individual is climbing along a very thin ledge, and if he begins to tell himself, "oh, I'm scared, I'm going to fall, look how high up I am," and begins to shake all over he will probably fall off the mountain. However, the same individual who tells himself, "now I've got to maintain control, I can't get nervous, I have to keep a straight head," will probably be able to climb the mountain successfully and not fall off.

These are just simple examples to show to you that your thinking is an important determiner of how you feel and how you perform. Another area which we have not mentioned is the area
of psychological control. Many researchers have now found through various techniques, such as relaxation and hypnosis, and what we called today Cognitive Restructuring, you can re-program your physiological processes. For instance, you may be able to increase your blood flow to certain parts of your body, you may be able to change your temperature, you may be able to lower and raise your blood pressure and various other physiological processes.

Another area which is very important and is related to performance is what we call self-concept. Now self-concept is basically the attitudes, beliefs and feelings that you have about yourself and your ability to deal with the world. So, your self-concept thus fits in with the model which we previously discussed in which thoughts are an important deterrer of our feelings.

Now if you're experiencing a lot of emotional upset in your life or distress, you will be unable to function well. For instance, when you go into the gym for a training session and you're very upset, emotionally disturbed, your work-out is naturally going to be affected. Thus, it is important to maintain a positive attitude about yourself and your performance.

The research on self-concept suggests that as your self-concept improves, so does your performance. That is, the more positive thoughts and feelings you have about yourself, the more positive your performance will be. Also, if we take two people of equal ability, the one who has the highest interself-concept generally will excel in any particular competition. Thus, it is very important to maintain a positive attitude about yourself.

After this introduction to Cognitive Restructuring and Self-Concepts, the introduction to hypnosis was presented as explicated by Appendix C. Following the introduction to hypnosis, the four-part hypnotic induction as explicated in Appendix C was next presented. After the individual was deeply relaxed, the imagery section used to facilitate performance and growth was presented. The transcript of this presentation is listed below:

Now that you're in this very deeply relaxed state, I want you to imagine and visualize several things for me. First of all, I want you to develop a scale of arousal that you can apply when you are performing your exercise in the gym. This scale will go from 1 to 5. 1 will mean that that you are in a very relaxed and
comfortable state, too relaxed to perform a maximum lift, such as when you're in a deep state of sleep. 5 will represent a high level of arousal and excitement associated with your best athletic performance ever. First of all, I want you to picture yourself at arousal level number 1. I want you to see yourself just waking up from a deep sleep, you're very tired and groggy, there is little adrenalin flowing in your body, your pulse and heart are beating very slow, your skin temperature in the normal range. You're in a very, very relaxed state. Now I want you to see your arousal level increase to what you're going to call "arousal level 2." Arousal level 2 is the physiological state that we need to say, slowly walk around your home or apartment. As you see yourself getting up from arousal level 1, from laying down, and getting up and around, you notice that your heart beat will increase slightly, your pulse will increase slightly, but not very much. You can sense the increase in your physiological functions, but this is again a low level of arousal. Now I want you to experience yourself moving from arousal level 2 to arousal level 3. Now let's say that arousal level 3, is a physiological state needed for you to engage in a moderate state of jogging. Your heart has again increased, you see yourself running, your respiration rate is slightly increased, you perhaps may sense some sweating along with your increased respiration rate. You sense the blood pulsating and pumping through your body and your heart beating just a little faster. Arousal level 4 is associated with increasing the pace to a fast sprint, your heart beats faster and stronger, you may perspire more and your physiological rate generally increases. Your adrenalin now is flowing very strongly and you feel a very strongly tingly sensation throughout your body. The last arousal level 5 is the maximum state of arousal level you can attain associated with your best athletic performance ever. Now your adrenalin increases even more over arousal level 4, your heart beat may be even stronger and you feel the respiration rate and perhaps more sweating this time.

So, now that you have imagined yourself going up the arousal scale I want you now to practice in association with performing a prone barbell press. It is important for you to monitor your arousal level so that you can obtain maximal performance. I want you now to picture yourself at your gym or your weight lifting club, wherever you train performing bench presses and let's say you will perform five sets of the bench press. Now each set that you perform will increase your arousal level by 1. Let us say that we start with a light weight and you progressively increase your weight. Now, your first performance is with your light weight and your arousal level is very low, let's say arousal level 1. Remember this is just barely above the awaking state, your heart is not beating fast, you're very relaxed. You don't need a lot of energy to lift this light weight. See yourself performing this weight and as you perform, I want you to think about focusing
only on the weight and not distractions. I want you now to picture yourself with lifting a heavier weight, your second set, and now your arousal level is 2. Remember this is the arousal level needed to walk around the room, your heart is beating a little faster, you can sense it beating but it's not beating very strong. You're essentially very relaxed but your arousal level is just slightly increased. Again, your psychological focusing and attention to the task is very good, you concentrate only on the bar, nothing else around you. You don't concentrate on the weight, you only concentrate on the process of pressing the weight. You are eliminating all distractions. See yourself now performing your next set, this is at arousal level 3. Remember arousal level 3 is associated with a slow jog, your heart beat has increased, now you are beginning to breathe heavier, your respiration rate may have increased, your perspiration may have also increased and your adrenalin is increasing, the weight is getting a little heavier. However, you are not concerned about the weight, only your performance. You are thinking only positive thoughts, how you will very strongly and quickly press the weight, concentrate only on the weight, on nothing else, as you see yourself performing this movement. Now see yourself moving to arousal level 4. Arousal level 4 is the arousal level needed for you to run a quick, rapid sprint. Again, your heart beat is increased, your respiration has increased, you feel a surge of adrenalin through your body, and you've attained a significantly higher level of arousal, this is arousal level 4. As you see yourself pressing the bar at arousal level 4, you still maintain good psychological control, focusing and concentrating all your energy on only pressing the bar and nothing else. No distractions enter your mind, you do not think about the weight you are lifting, only lifting the weight. The weight seems very light for you, despite the fact that we have increased the weight. Now light, you have a very positive feeling of confidence as you approach the weight. Now, picture yourself taking a brief rest, and then pressing the weight one more time. Before you increase this weight or before you perform this weight see yourself now at arousal level 5. This is the arousal level needed for your best athletic performance ever. You are feeling very strong and very positive, you have blended the psychological factors together with a high arousal level. You may even picture yourself taking one second before you lift, preparing yourself mentally and physically for this lift. You are at arousal level 5, now your heart is beating strong, there is a high level of adrenalin flowing through your body and you take the weight, you concentrate only on pressing the weight strongly and with no other distractions on your mind you complete the lift successfully and easily. After you have completed, you have a sense of well being, you feel very positive about your performance and you know that by monitoring your arousal level and psychological state you can perform very well. You will notice that the weight feels very light in the weeks to come and your performance will be very good.
The last part of imagery will be directed at facilitating muscular growth. This will be done by attempting to facilitate an increased blood flow to the arms and chest as well as using sensory distortions associated with increased muscular size:

I want you to picture yourself in a very relaxed, comfortable place where you will be isolated from any distractions. You may want to picture yourself in your room or at a friend's house or out in the woods, but in a comfortable location where you will experience no distractions. I want you to see yourself laying down in a very relaxed comfortable state. I want you to see now, a friend or an acquaintance holding two very moist, hot, towels. They are so hot with warm moisture that you can see the steam coming off of them. Your friend gently places these towels across your arms and chest. As they are placed across your arms and chest, you immediately feel a very warm and hot sensation. This is not a burning sensation but a very pleasant, warm, hot sensation. With the towels placed on your chest and arms you begin to feel a swelling in this area. You feel the heat, the warmth, and it seems to pull blood into the chest and arms. Imagine your whole body is a highway system and all the extra blood is being transported to the arms and chest. You begin to feel a very pleasant swelling sensation in your arms and chest. You feel your heart beating strongly and you envision your whole body a giant transport system carrying all of your extra blood to your chest and arms. Your chest and arms begin to feel warm and swell, they get larger and larger and larger. I want you to just take a few minutes and concentrate on the sensational warmth, the increased size and swelling you are feeling in your arms and chest. You may be feeling a heavy warm tingling sensation in your chest and arms, which is associated with this increased blood flow. You may even sense or hear your heart beating strongly, increasing the blood flow into these areas (a long pause in the transcript was included so that the individuals could focus on the sensation of increased blood flow to the arms and chest).

Now that you have focused on the increased blood flow into your arms and chest and you feel the swelling and the increased size, I want you to picture yourself now standing up, getting up, and as you stand up and walk around you automatically feel larger and bigger in the arms and chest. Swelling is evident to you as you walk around; your skin is very tight, the chest and arms feel very large. It's a very comfortable feeling. In your mind's eye you can see yourself now perhaps six months, a year or two years from now, and you see yourself larger than you are now, you see yourself making significant muscular gains, and you see yourself walking around in a public place and you notice that you are significantly larger now in the chest and arms. The training over
the years has paid off and you are now much larger, much more con­
fident in yourself, you feel very pleased and happy with your prog­
ress. You see that other people also sense your progress, in fact,
these people sometimes stop and look at you as you walk in a pub­
lic place. You are very happy, very pleased at how large you are
now. You don't feel that you are better than other people, or you
don't feel that you are on exhibition, you just simply know that
you trained hard and you're proud of the progress that you made.

Now, it is important for you to practice this technique, that
is the imagery we discussed with the prone barbell press, and the
increases of blood flow and muscular growth in your chest and arms
during the week. If you could take five or ten minutes and put
yourself in the place where you will not be distracted and simply
go through the imagery technique without the hypnosis you may find
that your progress in these areas will increase as you practice.
Imagery and gaining control over bodily processes is a learning
process and thus will benefit from continued practice.

I'm going to count to five now, and when I say five I want
you to open your eyes, you will be wide awake and feel very re­
freshed and feel very alert. Remember, when I reach the number
five, you will open your eyes and you will feel very refreshed and
very relaxed. One-two-three-four-five.

Session 2 begins with a review of the Cognitive Restructuring mod­
el in which the same points presented in Session 1 are simply reiter­
ated. Following that, the subjects are told that they will be given a
written exercise which will help them identify situations in which they
feel negative, emotional and behavioral consequences. They will learn
to identify and restructure the negative irrational beliefs associated
with these disturbing emotional and behavioral consequences. They are
told to carefully read this instrument and complete it and that the
tape will be turned off until everyone has completed the instrument.
The monitor present at this point turns off the tape and passes out the
instrument. The tape is turned on when everyone has completed the in­
strument. The first presentation of the self-directed behavior change
instrument is simply designed to help them identify generally disturb­
ing situations, but they can relate that to neuro-muscular performance
at that point if they wish. However, this is simply to orient them in the Cognitive Restructuring model. After they have completed the exercise, the tape is turned on again and the four-part hypnotic induction as listed in Appendix D is presented. Following that, the individuals are assisted in the Rational Stage Directed Hypnotherapy Restructuring Process. A transcript of this is listed below:

I want you to focus on the specific situations that you have determined in the previous exercise to be disturbing. Pick out one disturbing situation and imagine that you are currently in that situation. Allow yourself to feel the specific emotion (for example, anger and hostility) in conjunction with this situation. Notice how uncomfortable it is and realize how self-defeating this emotion is in this particular instance. Describe to yourself the ways in which these emotions are preventing you from experiencing and interacting in ways that you would like. Now concentrate also on the physical symptoms you are experiencing with this negative emotion, notice that these physical symptoms are uncomfortable. Also, picture yourself now behaving in an undesirable way. Picture yourself performing inadequately or ineffectively in the situation you have imagined. As you continue to see yourself performing ineffectively and out of control in this situation, concentrate on the thoughts that you associate with this event. As you continue to see these thoughts in your mind, allow yourself to experience emotional discomfort. The more you continue to tell yourself, the irrational self the defeating thoughts, the more you will tend to feel these negative emotions.

Continue to concentrate on those irrational self-defeating thoughts and notice how you tend to become more disturbed and notice how your physical reaction, for example, your heart beats faster and you become more tense, nervous or upset. You can very clearly see how these irrational thoughts are causing you to upset yourself.

Now, I want you to tell yourself to stop thinking these irrational thoughts and we will begin to explore and become more aware of more rational ways of thinking. Now that you have stopped thinking this irrational sequence which you previously identified and now that you are aware of the negative irrational statements that you tell yourself in this situation, let yourself imagine that you are thinking more rational thoughts in conjunction with the same situation as before. Remember from the previous exercise the more rational thoughts you have identified. Explore these irrational thoughts, become aware that you are thinking the specific rational thoughts. Notice that when you begin to tell
yourself these more rational thoughts your negative emotional states tend to subside. As the negative emotion (for example, anxiety or hostility) lessens, picture yourself engaging in more rational actions and behavior in conjunction with your rational thinking and feeling. Notice yourself becoming more effective when you think rationally. Explore these new behaviors, think of new ways of acting in these situations and continue to think rationally about them. Just picture overall how much more effective you are and how much more in control you are when you are able to evaluate your thinking processes. Identify your negative thoughts and substitute more rational thoughts in their place.

The rest of the session is devoted to the imagery techniques listed above in Session 1 designed to facilitate performance and growth.

Session 3 begins with the identification of negative self referring statements or negative statements associated with poor self-concept. The following is the transcript presented on this:

If you recall several sessions ago, we talked about the role of self-concept and performance. The general rule is that the better you feel, the better you will perform and function in the world. Self-concept is simply the statements that one holds about himself and his ability to function in the world. Therefore, by modifying certain statements or thoughts about oneself, one can improve his self-concept. Many of us make irrational conclusions or have irrational thoughts about ourselves. For instance, many of us compare ourselves with other people and feel that we are inferior and therefore rate ourselves lower. Many of us also confuse our performance with our worth. That is, if we perform a certain task worse than someone (for instance, place low in an athletic competition or get a C or B in a certain class instead of an A), we tend to make the conclusion that we are of lesser worth than other people who perform better than us. However, this leads to much emotional disturbance. It is better if we are just able to accept ourselves as worthy simply because we exist and we have the ability to enjoy life on a day-to-day basis. We can then still rate our performances but not confuse our worth with our performance. That is, we know that we are always worthy, and that we have worth simply because we exist, but we can still evaluate our performances without needlessly disturbing ourselves.

Others of us put ourselves down because we don't have specific areas to feel like we can excel in and feel competent in. However, by putting ourselves down and lowering our confidence or even becoming depressed, we are often unable to explore their
alternatives for a lack of confidence and we never really learned to find an area to excel in.

Others of us blame ourselves for past mistakes and we feel that because we failed in the past that we will always fail in the future. However, past failures have no significance with present behavior unless we continually tell ourselves internally that we have failed in the past and that we will perform well in the future. Others of us feel that we are inadequate physically compared to other people and we thus put ourselves down for that. Now all of you are involved in exercise and weight lifting and if you want to make gains and in fact feel better about your body image, putting yourself down and thinking about your physical inferiority will only interfere with positive training and positive performance.

Others of us have unresolved conflict resulting from our interaction with our parents and family. Much of us feel that because we didn't get along with our parents or because we didn't get our love or our conflict we are therefore of less worth or significance than other people or we spend time disturbing ourselves about family interaction. Now, I've just simply listed or talked with you about a number of ways in which you can disturb yourself.

These were suggested to me by your profiles on the Tennessee Self-Concept Scale. However, these are just general statements and what I want you to do now is use the self-directed behavior change instrument as a guide to identify negative statements you say about yourself associated with poor self-concept (as well as the negative emotional and behavioral consequences associated with that).

Session 3 next involved passing out the self-directed behavior change instrument with directions as previously given. The tape was turned off until this was completed and then the four-part hypnotic induction as presented in Appendix D was presented followed by the transcript listed above on Rational Stage Directed Hypnotherapy in which the individual was directed to imagine a specific event or situation that he had determined to be disturbing. This was followed by the hypnotic imagery to facilitate growth and performance listed earlier in the appendix.
Session 4 began with an identification of negative beliefs associated with poor athletic performance. Following is the transcript associated with that:

We have previously discussed the role of negative or irrational beliefs in poor athletic performance. However, we want to specifically talk about that today as well as have you identify your own irrational beliefs or attitudes associated with your performance. Now, there are a number of negative strategies associated with athletic performance. I will suggest some general trends and then I want you to use the self-directed behavior change instrument to identify your own specific negative beliefs associated with your performance. In weight training, one of the most common strategies which seems to be related to poor performance is first of all, concentrating on the amount of weight instead of the actual process needed to complete the weight. That is, certain people develop psychological barriers, for instance, a 300 lb. bench press seems like an enormous amount of weight and often the individual approaching this weight for the first time is thinking more about the heavy amount of weight he has to press than the actual process needed. The individual begins to doubt himself and forgets about the process involved to lift the weight. Now other people tend to tell themselves things like "this weight is too heavy, I may fail, and after I fail everyone in the gym or that was watching will think I'm no good and worthless and weak." This is another strategy for distracting oneself and investing energy in activities that result in poor performance. So, it is very important whenever you approach a maximal performance to concentrate all your energy on the process of lifting or what you are doing and to minimize all distractions; that is, your own internal distractions as well as any external distractions in the setting in which you train. Now identify your own negative thoughts associated with your poor performance. I want you to think about your days when your performance has been sub-normal and identify the negative beliefs associated with that. We are now going to pass out the self-directed behavior change instrument and you will use that as a framework to identify your negative beliefs associated with poor performance.

The rest of the session was that the self-directed behavior change instrument was passed out, the tape of course was turned off at this point. After everyone had finished the instrument, the tape was turned on, followed by the four-part hypnotic induction as presented in Appendix D, followed by Rational Stage Directed Hypnotherapy (earlier
identified in Session 2) and that was followed by the hypnotic imagery designed to facilitate growth and performance.