74-9069

JOHNSON, Stephen Jeffrey, 1946-
EFFECTS OF YOGA-THERAPY ON CONFLICT RESOLUTION, SELF-CONCEPT, AND EMOTIONAL ADJUSTMENT.

University of Southern California, Ph.D., 1974
Education, guidance and counseling

University Microfilms, A XEROX Company, Ann Arbor, Michigan

EFFECTS OF YOGA-THERAPY ON CONFLICT RESOLUTION, SELF-CONCEPT, AND EMOTIONAL ADJUSTMENT

by

Stephen Jeffrey Johnson

A Dissertation Presented to the

FACULTY OF THE GRADUATE SCHOOL

UNIVERSITY OF SOUTHERN CALIFORNIA

In Partial Fulfillment of the

Requirements for the Degree

DOCTOR OF PHILOSOPHY

(Education)

February 1974

UNIVERSITY OF SOUTHERN CALIFORNIA
THE GRADUATE SCHOOL
UNIVERSITY PARK
LOS ANGELES, CALIFORNIA 90007

This dissertation, written by

Stephen Jeffrey Johnson

under the direction of his.... Dissertation Committee, and approved by all its members, has been presented to and accepted by The Graduate School, in partial fulfillment of requirements of the degree of

DOCTOR OF PHILOSOPHY

John W Stallings
Dean

Date Nov. 26, 1973

DISSERTATION COMMITTEE

Don R. Schrader
Chairman

Sydney B. Thorpe

Leo F. Buscaglia

To Lauranne

1. The Search for the Bull

In the pasture of this world, I endlessly
push aside the tall grasses in search
of the bull.
Following unnamed rivers, lost upon the
interpenetrating paths of distant
mountains,
My strength failing and my vitality
exhausted, I cannot find the bull.
I only hear the locusts chirring through
the forest at night.

(Zen Flesh, Zen Bones, p. 168)

ACKNOWLEDGMENTS

There are a number of persons who have generously contributed to the evolution of this dissertation. I feel privileged to express my deep appreciation to all of them.

I am grateful to the members of my committee for their shared insights, challenging questions, and constructive criticisms. In my relationship of over four years with each of these gentle men, I have grown from their wisdom, understanding, and support. To Dr. Buscaglia, who pointed to the footprints of the bull; to Dr. Olinger, who assisted with my preparation for the journey; and to Dr. Schrader, who has helped me to discern the path, I am indebted.

My chairman, Dr. Schrader, who has contributed vastly to my personal and professional growth through his sincere and unrestrained openness has earned my profound admiration and gratitude.

I wish to thank Dr. Frank Fox, Dr. John Martois, Bryan Dominy, and Gurucharn Singh for their assistance

during the technical phase of the research. Baba Phil Hoskins, who volunteered his expertise as instructor for the Yoga-therapy course, provided significantly to the success of this endeavor.

Finally, special mention goes to Dr. Earl Carnes for his consistent encouragement and unflagging support of my desire to journey into this virtually uncharted territory.

Sat Nam

TABLE OF CONTENTS

LIST OF TABLES

2. Discovering the Footprints

Along the riverbank under the trees, I
discover footprints!
Even under the fragrant grass I see his prints.
Deep in remote mountains they are found.
These traces no more can be hidden than one's
nose, looking heavenward.

(Zen Flesh, Zen Bones, p. 170)

3. Perceiving the Bull

I hear the song of the nightingale.
The sun is warm, the wind is mild, willows are
    green along the shore,
Here no bull can hide!
What artist can draw that massive head, those
    majestic horns?

(Zen Flesh, Zen Bones, p. 172)

CHAPTER I

INTRODUCTION

Background

The Yoga system of health has been practiced by the yogis in India for thousands of years. Yogi Vithaldas (date unobtainable) stresses that even though Yoga's roots are deeply buried in the past, its message is addressed no less importantly to the people of today living in the restless atmosphere of the modern world. As a vehicle for enhancing bodily and mental poise, Yoga is held to produce an equanimity of spirit which benefits the whole nervous system. It purports to train the student in the

> . . . basic principles of health and creates a true placidity of nature that allows great intensity of activity of both mind and body, when such activity is necessary. (p. 13)

People everywhere, whose lives are constantly under strain and whose schedules demand top physical and mental fitness, have reportedly learned the value of this system. Swami Vishnudevananda (date unobtainable) assures the

reader that age is no factor in Yoga's effectiveness. "Sickness and disease are no deterrents. Vocation and occupation make no difference . . ." (p. vi). Irrespective of race or creed, Yoga extends itself to all who are searching for a more fulfilling existence.

Yoga advocates no pursuit of extremes, but rather a logically worked-out middle ground which, through physical application and a desire for knowledge, is possible to attain. In this sense, it resembles the Greek ideal of the "golden mean."

Calling for no abnegation of the things of life, as many tend to believe, Yoga even looks upon the indulgences of smoking and drinking with tolerance; in this sense, it is not a joyless or austere ritual requiring self-deprivation, but rather an empathic system founded on the principles of a healthy existence while cognizant of the values of a changing world.

Yoga is not in itself a religion, but rather presents itself as one means for revealing the "God" in man and placing the responsibility of spiritual awakening on the individual.

As a philosophy, it offers not only an answer to so many of the problems that plague man, but also suggests

a "scientific" way to transcend these problems and their often unfavorable consequences. Moreover, since Yoga philosophy has no quarrel with any religion or faith, it can be practiced by anyone who is sincere and willing to search for "truth."

Its adherents ask that it be recognized for what it is, and not for what so many believe--a mystical cult exemplified by those who relish sitting on a bed of nails, eating fire, climbing free-suspending ropes, or charming snakes.

Yogi Vithaldas (date unobtainable) points out that Yoga is a system, devised and practiced for over two thousand years, with a therapeutic basis for its physical and mental objective. Much of it has been disguised in Eastern symbolism but, stripped of this, he states that it stands revealed as a rational system of culture, both physical and mental, and as such warrants attention by the Western world.

Yoga-therapy as Related to Counseling and Psychotherapy

> . . . Growing awareness of one's body, wishes and desires--processes which are obviously related to experiencing of identity--normally also bring heightened appreciation of one's self as a being

> and heightened reverance for being itself. It is at this point that the eastern philosophies, like Zen Buddhism, have much to teach us. (Rollo, May, 1969, p. 263)

It is the impression of this writer that many of the approaches to counseling and psychotherapy have not adequately met the overall needs of the client. They have fallen short of the mark due to their inability to attend to the interrelationship between the client's physiological, mental, emotional, and spiritual "bodies."

In the field of rehabilitation counseling, there is a special necessity for a counseling theory and methodology which addresses itself to the total individual functioning at various levels of immobilization or incapacitation. It is in response to this necessity, as well as a desire to seek a richer individual fulfillment, that this writer became interested in the possibilities and further applications of Yoga.

As a student and instructor of Yoga and witness to the astounding "curative" benefits demonstrated in physically and emotionally disabled "devotees," it became clearly apparent that Yoga was more than a mystical practice restricted to a confined cult. Its boundaries are no longer limited largely to the Eastern hemisphere but are being extended to embrace the ever-growing needs of

Westerners as well.

Malhotra (1963) states, regarding Yoga, that:

> Its approach to man is holistic. Diet, breathing, exercise, posture, religion, philosophy, love, work all receive due attention. It is one of the oldest known "total-push" therapies. It pays more than lip service to the concept of psychosomatic medicine. Yoga does not despise the body, nor does it look at the emotions with a disdainful eye. Many a psychiatrist treats a patient as if he were a disembodied mind, and many a general practitioner treats a patient as if he were a mindless body. Yoga believes that the socratic injunction, "know thyself," should begin with "know thy body also." "The soul is a master, and the body a servant," said Nietzsche, "and the master should have a good servant." (p. 438).

In recognizing that man is both psychical and physical, with a close interrelationship between these two aspects, Yoga not only endeavors to systematize and establish the psychic laws in relation to the physical, but anticipates by many centuries the notions which psychosomatic interaction and scientific medicine only more recently came to accept. Yogi Vithaldas (date unobtainable) states that:

> Yoga is an ancient and extended system of psychotherapy which claims vast understanding of the powers of the mind over the body. The points of difference between the psychotherapy of the East and that of the West are the emphasis laid by the East on body poise, breathing, and the objectification of the body. . . . The postures, breathing, exercises and diet induced by Yoga-therapy are intended to bring into being a state of mind attuned to the

> world around . . . The "objectification" of the mind is made possible by its functioning on varying levels of consciousness . . . Yoga aims at that command over the body and mind that is the state of individual existence in which the mind, working smoothly in a healthy body on a high level of consciousness, can observe and control all mental activities on the lower levels (pp. 27, 29, 30, 31).

The result of "nervousness," reflected in so many bodily disorders and diseases, is held by Yoga advocates to be the outcome of straining and tension of the faculties in a conscious or unconscious effort of the individual to adapt himself to his environment. The ever-growing concern with spiritual nourishment and physical revitalization, the more recent psychedelic revolution and the widespread use of and the variety of other self-help and self-exploration drugs, may reflect aspects of man's discontent and sense of alienation from himself and others. Yoga-therapy avails itself as one channel through which man can again relate to himself and his environment more intimately while not exceeding the boundaries of a healthy existence.

Yoga-therapy, then, is a kind of common sense system. It is apparently applicable to meeting the physical, mental, emotional, and spiritual needs of man. As such, Yoga-therapy earns the serious consideration of those who are concerned with self-improvement and are dedicated

to helping to uncover more suitable ways to meet the needs of a changing and stress-beleaguered society.

The Problem

There appears to be a burgeoning interest among Westerners in Eastern concepts and techniques which address specifically the union between the physiological and psychological aspects of the individual. This interest stands as a harbinger that signals the need for further examination of Yoga, Transcendental Meditation, and the like.

The existing research on the effectiveness of Yoga is predominantly physiological in nature. In fact, psychologically based research is almost nonexistent. It is for this purpose as well as the intent of opening the door to further examination of the psychotherapeutic effectiveness of Yoga, that the present study was undertaken.

Purpose of the Study

The purpose of this study was to investigate specifically the effects of Yoga-therapy on self-concept and conflict-resolution, and to determine whether a significant improvement in these factors could be achieved through the application of Yoga-therapy.

A second, more general, purpose of this study was to investigate the effects of Yoga-therapy on emotional adjustment, and to determine whether a significant improvement in adjustment could be achieved through the practice of Yoga-therapy.

Research Hypotheses

1. Yoga-therapy is an effective method of stimulating positive change in participants' ability to resolve conflict.
2. Yoga-therapy is an effective method of stimulating positive change in participants' self-concept.

   Subhypotheses:

   Yoga-therapy is an effective method of stimulating positive change in participants'

   a. level of self-criticism,
   b. level of self-esteem,
   c. identity,
   d. self-satisfaction,
   e. perception of own behavior,
   f. perception of physical self,
   g. moral-ethical self,
   h. personal self,

i. family self,

j. social self.

3. Yoga-therapy is an effective method of stimulating positive change in participants' emotional adjustment.

Subhypotheses:

Yoga-therapy is an effective method of stimulating positive change in participants'

a. level of total conflict,

b. level of defensiveness,

c. level of maladjustment/adjustment,

d. level of personality disorder,

e. level of neurosis,

f. level of personality integration.

Scope of the Study

Assumptions

The current investigation rests upon the acceptance of several assumptions:

1. The Yoga-therapy instructor performed in a skilled and unbiased manner.
2. The subjects responded in a recognizably genuine manner to the evaluation instruments.

3. The instruments chosen to provide the data in this study are reasonably valid and reliable measures of those dimensions of the personality that they purport to measure.
4. There are certain attitudes, values, and personality characteristics which are directly related to, and important in, determining one's self-concept, ability to resolve conflict, and one's level of emotional adjustment.
5. The sample is reasonably representative of the population from which it was drawn.

Delimitations

1. The duration of the experimental period was twelve weeks, which is considered to be adequate in length to indicate changes, if any.
2. The study made use of one instructor who volunteered his services. Generalizing the finding to other instructors should be done only with appropriate reservations.
3. The number of subjects in each group was twenty. This is assumed to be large enough, considering that the usual number of participants in similar Yoga classes approaches this number.

Limitations

1. Control over the activities of subjects outside of class is, naturally, not feasible; for this reason, randomization in the possible effects of these uncontrolled variables was assumed in order to control for possible sources of invalidity introduced externally. That this measure may be only partially satisfactory will need to be considered in evaluating the findings.
2. The investigator elected to explore the effectiveness of a specific method and specific source of Yoga-therapy (Kundalini). This choice by no means exhausts the range of possibilities which exists for the various other forms and schools of Yoga.

Definitions of Terms

Yoga.--The dictionary meaning of Yoga is "A hindu discipline for achieving union with the Supreme Spirit, through intense concentration, prescribed postures, controlled breathing, etc." (Guralnik, 1971).

McCartney (1969) states that:

> The word "Yoga" comes from the Sanscrit word "Yuj," which means "to join" or "to yoke." This leads us to the definition that Yoga is a means of joining one thing to another, or of yoking two things together. It is exactly that.
>
> Simply expressed, Yoga is the "joining" or "yoking" of the Individual Soul to the Universal Soul; the Union of the Personal Spirit to God . . . (p. 6).

Sage Pantanjali defines Yoga as ". . . the suspension of the modifications of the thinking principle which is obtained through different methods such as controlling the vital breath and the steady pose" (Vishnudevananda, date unobtainable, p. 12).

Vishnudevananda (date unobtainable) states:

> Yoga has been broadly divided into four forms: Karma Yoga (path of action), Bhakthi Yoga (path of devotion), Raja Yoga (path of mental control), and Gyana Yoga (path of knowledge). The aim of these Yogas is realization of the Brahman or the absolute even though they differ as to the means employed (p. 220).

The Yoga-therapy course designed for this study emphasizes Kundalini Yoga. Vishnudevananda (date unobtainable) further states:

> Raja Yoga has been divided into three subdivisions known as Mantra Yoga, Kundalini Yoga, and Hatha Yoga. These are all various modes of practice whereby the chitha vrithi or mental modifications are brought into control and the absolute is in various ways realized . . . (p. 220).

Mantra Yoga is meditation Yoga, Hatha Yoga gives attention to the physical body, and Kundalini Yoga is the process which evolves the upward movement of energy

(kundalini) and final union with consciousness (siva).

The Kundalini Yoga practiced in this course is "Yoga of awareness" as taught by Yogi Bhajan. It incorporates aspects of the main forms of Yoga (i.e., Karma, Bhakthi, Raja, and Gyana; and including aspects of Mantra and Hatha Yogas) as a means of bringing about the upward movement of kundalini.

Yoga-therapy.--Yogi Vithaldas states:

> Yoga is an ancient and extended system of psychotherapy . . . the postures, breathing exercises, and objectification of the body induced by Yoga-therapy automatically bring into being a state of mind perfectly attuned to the world around. Yoga makes the patient his own psycho-analyst, and it is from the study of Yoga-therapy itself that a satisfactory system is cultivated, with its consequent poise and peace of mind (pp. 27, 29).

Self-concept.--Operationally, self-concept is defined, for the purposes of the present study, as those elements of the self which are measured in the Tennessee Self Concept Scale (Fitts, 1965).

Emotional adjustment.--For the purposes of the present study, emotional adjustment is defined operationally as those elements of emotional adjustment which are measured in the Tennessee Self Concept Scale (Fitts, 1965).

Conflict resolution.--Operationally, conflict resolution is defined, for the purposes of the present study, as those elements of one's ability to resolve conflict which are measured in the Conflict Resolution Inventory (Marston and Barrett, 1973).

Both the Tennessee Self Concept Scale and the Conflict Resolution Inventory will be described and evaluated more completely in the following chapters.

Organization of the Study

The introduction to the study, problem situation, and purpose of the study have been presented along with declarations concerning assumptions, delimitations, and limitations contained in the design. Terms have been defined for semantic continuity, and research hypotheses were formulated from current theory.

Subsequent chapters present a review of related literature relevant to the current study; a description of the procedures, subject composition, and methodology of the study; a description of the data and the findings of the research, supplemented by a discussion; and a section including the summary, conclusions, and implications for further study.

4. Catching the Bull

I seize him with a terrific struggle.
His great will and power are inexhaustible.
He charges to the high plateau far above
    the cloud-mists,
Or in an impenetrable ravine he stands.

(Zen Flesh, Zen Bones, p. 174)

5. Taming the Bull

The whip and rope are necessary,
Else he might stray off down some dusty
road.
Being well trained, he becomes naturally
gentle.
Then, unfettered, he obeys his master.

(Zen Flesh, Zen Bones, p. 176)

CHAPTER II

REVIEW OF THE LITERATURE

A preponderance of research articles reviewed in this chapter deal, respectively, with the physiological effects incurred from the practice of Yoga. With the exception of one possible experimental study of a psychological nature (Udupa, 1972), this writer was hard-pressed to uncover any further psychologically-based research, although psychological implications and hypotheses may be drawn from the physiological research at hand. It appears, therefore, that the present investigation is one of the first, if not the first, to measure experimentally the psychotherapeutic effects stemming from the practice of a system of Yoga.

Recognizing the close relationship between the physiological and psychological make-up of an individual, the following research articles were reviewed and summarized with the intent of lending credence and providing additional understanding to the present study.

Research in Control over Autonomic Functions

There are various well-known feats which many yogis achieve through their training, such as remaining in unusual postures for long periods of time or moving their muscles, particularly their abdominal muscles, in complicated and unusual ways. Some also display great muscular strength and dexterity by breaking chains or cutting palm leaves neatly in two by a scissor action of their fingers. The most remarkable feats, however, are achieved by breathing exercises. There are those who claim that they can hold their breath for various lengths of time, sometimes up to several minutes, and even allow themselves to be buried in the ground for several days.

Vakil (1950) describes a remarkable yogic feat of endurance in which an "emaciated" sadhu remained in a state of suspended animation and meditation (samadhi) for over sixty-two hours in an air-tight box. The act, it is reported, was witnessed at close quarters by over 10,000 spectators.

Immediately following the removal of the sadhu from the box, he was medically examined by Vakil who found him to be "in a state of semiconsciousness or stupor with

closed eyes and flaccid limbs." It is reported that further examination revealed that the pupillary reflexes were present but sluggish. The pulse, whose rate was regular at eighty beats per minute, was of low volume. The blood pressure was 112/78mm.Hg., and the respirations were only eight to ten per minute and regular. Vakil concluded that, "Except for some scratches and cuts over the lower extremities and trunk he was apparently none the worse for his grueling experience."

Another investigation, carried out in the city of Bangalore, India, in 1956, had two objectives: (1) to establish under controlled conditions to what extent a yogi's claim of being able to remain buried for an indefinite period was true, and (2) if it were, to find out how this was achieved (Hoenig, 1968).

Hoenig (1968) recounts that an elaborate pit was dug, allowing for a number of measuring instruments. During the Yogi's nine-hour stay in the pit, recordings were made for the first ten minutes in every hour and occasionally at irregular intervals between those times. The results indicate that at the end of the nine hours the carbon dioxide level had risen only to 3.8 per cent. The author states that a man breathing normally in an air-tight

box of the same size should raise carbon dioxide to 6.6 per cent after two hours, and that that would make life quite impossible.

The findings further reveal that the electrocardiogram was normal throughout the experiment, except for the rate. There was a marked variation in rate, which tended to show a certain regularity. The rate gradually changed from one hundred to forty beats per minute and this change, which was gradual, repeated itself every twenty to twenty-five minutes.

The results also show that the electroencephalogram remained normal throughout the experiment, displaying a typical waking record; and that this record was characterized by a very stable alpha rhythm of fifty microvolts, which remained constant whenever recording took place.

Throughout the experiment, the Yogi had reportedly been lying absolutely still in a posture called shavasana or "corpse pose." This posture is the same used in the "autogenous training" by Schultz, et al., and the relaxation exercises of Jacobson and Haugen, et al.; all these are well-established methods of psychotherapy. The Yogi also had reportedly been practicing the Ujjaya type of breathing, which consists of two shallow inhalations, a

pause, and an exhalation. The EEG record showed that the Yogi remained awake during the entire time and he (the Yogi) confirmed that he had been praying--repeating the names of God.

Hoenig (1968) states that pit experiments similar to the one described above have been carried out by Swami Kuvalayananda, et al., at the Yoga Research Centre at Lonavla. Although the Swami has not reported his findings in print, it appears that his experiments consisted of trying to empty the hermetically-closed pit of air by pumping it out. The researchers apparently found, however, that the pressure inside the pit fell by only 0.5 per cent, indicating the probability that fresh oxygen was leaking into the pit.

With regard to this finding, Hoenig observes:

> This would largely explain our own findings of the very slow rise in carbon dioxide which we found in the pit, but it does not exclude the possibility that abnormal physiological events are taking place at the same time, such as a very low metabolic rate (p. 80).

Anand, et al. (1961c) similarly found that a certain amount of seepage of gases would be occurring into the underground pit through the surrounding earth, and therefore concluded that studies carried out on the basis of

oxygen and carbon dioxide contents in the pit may not give an exact idea about the utilization of oxygen by the Yogi in the pit.

The above authors had heard that Shri Ramanand Yogi of Andhra had claimed an ability to remain in a dug-out-and-sealed underground pit for a maximum of twenty-eight days. Shri Ramanand was therefore requested to stay for a period of time in an "air-tight" and "sealed metallic box" and submit himself to scientific investigation in that situation.

It is reported that the Yogi was studied in this box on two occasions, a total period of eight hours on the first occasion and a total period of ten hours on the second. Two "normal" individuals were also studied in an identical manner in the air-tight box to serve as controls. Reportedly, one of them stayed in the box for about four hours, while the other individual remained for about seven hours.

The results indicated that Shri Ramanand was able voluntarily to reduce his oxygen consumption considerably below his basal oxygen requirements when he entered the box. The oxygen consumption of one of the two normal persons also studied, who stayed in the box in excess of

seven hours, was more than the basal requirements. The other subject was tested twice in this box and on both occasions stayed in for about four hours. He did not show any significant change from his normal basal oxygen requirements on either occasion.

Even when breathing air, the oxygen content of which had decreased and carbon dioxide content increased, the Yogi did not display any hyperpnoea or tachycardia.

The investigators state that the electroencephalogram mostly showed a low voltage fast activity, which ordinarily is associated with early stages of sleep or even a stage of "alerting" of the brain. The Yogi did not pass into the stage of typical deep sleep. The authors further declare that ordinarily there is some decrease in basal metabolic rate during sleep. The decrease in oxygen intake was much more than what could be produced even by sleep which, they concluded, "indicates that the Yoga exercise does in fact produce changes which would allow a Yogi to survive longer under such conditions than would normally be expected."

A further claim of some Yogic "adepts" is that its practice may enable one to achieve independence, even of such a vital activity as the heart beat. Many Yogis claim

that they can voluntarily arrest the heart or at least slow its rate. Swami Vivekananda (1914) wrote that:

> There is not a single muscle in the body over which man cannot establish perfect control by practice, even the heart can be made to stop or go on at his (Yogi's) bidding, and in the same way each part of the organism can be made to obey him (Yogi) (p. 4).

Anand, et al. (1961a) state that these claims have never been substantiated, but the situation is not as clear cut as that. Attempts at ascertaining the substance of these claims have been made probably for the first time with the help of physiological apparatus by Brosse (1946). She reported stoppage of EKG activity in a Yogi during attempts to arrest the heart. Anand, et al. (1961a) note that she had recorded only a single channel EKG (lead I) and that the low voltage of cardiac potentials observed by her may possibly have been due to axis deviation.

Satyanarayanamurthi, et al. (1958) studied a Yogi who claimed he could arrest the heart by Pranayama (Yogic breathing exercises), particularly by the maneuver of Jalandabar bandha ("chin-lock"). The claim made by the Yogi was that he could arrest the heart for fifteen seconds at a time. The reported results of the examination of the Yogi during this activity revealed that the radial pulse was absent and that auscultation could not detect the

sounds for up to thirty seconds. Simultaneous EKG's, however, showed no abnormalities of heart activity whatever. Finger plethysmography showed the pulse to be present, though reduced. Fluoroscopy, carried out while the Yogi was in the horizontal position, is said to have shown cessation of cardiac activity "except for a flicker along the left border below the pulmonary conus and in the apical segment of the left ventricle." This reportedly lasted thirty seconds at a time and could be repeated several times. The researchers concluded that the control of the heart was due to the Valsalva maneuver (an attempt to exhale forcibly with the nose and mouth closed, causing increased intrathoracic pressure, slowing of the pulse, decreased return of blood to the heart, and increased venous pressure).

The same findings and conclusions were reported by Anand, et al. (1961a), who investigated three Yogis who had claimed that they could stop the heart. The cessation of cardiac activity could not be seen on X-ray; the only change was a narrowing of the heart shadow but the heart continued to beat normally. They also found a right axis deviation on the EKG if the heart was held in inspiration and a left axis deviation if held in expiration, the same

in fact as did Wenger and his colleagues.

Wenger, et al. (1961a) investigated the claim of four Yogis whom they described in some biographical detail. Two of the Yogis claimed that they could stop the heart. A third one, who also made this claim, declined to demonstrate it but only demonstrated the method he had used to achieve it in the past. The fourth Yogi claimed only that he could slow down the heart beat, but not arrest it.

The investigators found that the EKG remained essentially unchanged, as regards rate or amplitude during the experiment, although the heart sounds had become inaudible and the radial pulse had disappeared. Finger plethysmography continued to record a pulse throughout.

The only change in the EKG was a right axis deviation if the heart was held in inspiration, and a left axis deviation if held in expiration. X-rays showed that the transverse measurements of the heart decreased slightly during the breath holding, from 12cm to 11cm or 11.5cm.

The Yogi who declined to cooperate on that occasion was the same one who had been tested by Brosse in 1935, who found that he "stopped his heart." The method of achieving this, and which he apparently demonstrated, was the same as that of the other two Yogis.

The fourth Yogi who had claimed to slow the heart demonstrated this in the reclining position. It was reported that he engaged in Pranayama with Jalandabar bandha. During this, the researchers found that his heart rate showed a "remarkable" slowing and a disappearance of the P-wave. The longest cycle was three seconds. Further examination revealed that pressure on the carotid produced an increase in rate. The chin-lock alone produced no change and the breathing exercise alone produced slowing to two-second cycles. The authors concluded that this "remarkable" bradycardia came about by an excess of vagal discharge, but they were unable to offer any explanation as to how this was achieved. Regarding the achievements of the other two or three subjects, the authors state that this was due to the Valsalva maneuver.

Fenz (1970) recorded autonomic and behavioral measures from a recognized practitioner of Yoga who claimed the ability voluntarily to speed up or slow down his heart. What was of interest to the researcher was whether the Yogi, who claimed to be able consciously to slow down his heart, would prove capable of demonstrating this ability within the experimental paradigm of a reaction-time task.

He was allowed an initial period in which he simply performed the task; then he was presented with the auditory feedback of his heart rate while he was performing the task; and finally he was instructed to slow down his heart during the preparatory interval preceding the task, while continually being supplied with auditory feedback of his heart rate.

It was expected that the tendency for his heart rate to decrease during the preparatory interval would be heightened under conditions of feedback plus instructions to attempt consciously to slow the heart.

It was found, however, that rather than aiding him in his task, feedback and instructions to decelerate added to the complexity of the task with which the Yogi was confronted. Hence, his ability to concentrate upon his reaction-time performance was apparently impaired by the addition of feedback and instructions, and in conjunction with this, his heart-rate deceleration was reduced.

In conclusion, the authors state that no evidence was obtained that the Yogi was capable of controlling his heart rate when presented with auditory feedback of his heart beat and instructions to attempt to produce deceleration--the Yogi simply reacted to an increase in task

complexity.

Wenger, et al. (1961b) found only one subject who possessed direct voluntary control over any autonomically innervated function. It is reported that the subject could perspire from the forehead on command within one and a half to ten minutes. The act was accompanied by a marked increase in systolic blood pressure of which the Yogi was unaware; by slight increases, then decreases in forehead skin temperature; by a marked drop in forehead but only a slight drop in palmar skin resistance; and by slight increases in arm-skin temperature. No detectable movements occurred.

The researchers learned that this man had spent parts of two winters in caves in the Himalayas. During such periods, usually alone and unclad except for an animal skin, much of his time was spent in meditation, seated quietly on another animal skin. The cold distracted him, and his teacher advised him to concentrate on warmth and to visualize himself in extremely high temperature situations, telling him that then he would acquire bodily warmth. He reported gradual success after about six months of practice. Later he found that in a moderate climate the same practices produced not only increased

sensations of warmth but perspiration. The researchers suggest that this result represents a conditioned ANS response pattern to visual imagery based on reaction to the ambient temperatures in the caves, which were estimated to have approached zero degrees centigrade on occasion.

No one was found with voluntary control over internal sphincters of anus or urethra, but the researchers state no reason to doubt that it is possible. They did find those who employ a catheter or other form of tube and, with its help, are able to draw up water into the bladder or lower bowel. The claim is that after long practice the artificial aid can be abandoned. One other subject stated an ability to defecate at will if any fecal matter was present. He employed a particular position and movement of the tongue to aid in this control. Again, the control had been gained only after long practice.

It is reported that another subject regurgitated at will, but he professed to no special practice. Instead, he stated that, as a young man, he had discovered he could do this and used it occasionally as a cleansing device. Motion picture records suggest that the process involves a special use of striated muscles in the common yogic exercise known as uddiyana. It involves raising of the

diaphragm and inward distension of the abdomen. Here the maneuver was accomplished suddenly and forcefully.

The researchers concluded that voluntary control of autonomic function occurs only rarely in Yogis, if at all. Where such control is claimed, intervening involuntary mechanisms are usually employed.

Research in Hatha Yoga

Malhotra (1963) lists the distinctive advantages of the Hatha Yoga Asanas (postures):

1. No violent traumatic strain is induced in the muscular system of the body.
2. The litheness and agility of the body are enhanced.
3. Muscular rigidity on the one hand, and muscular flaccidity on the other, are prevented.
4. No apparatus is required.
5. The proprioceptive reflexes are toned up.
6. Self-mastery begins with the mastery of the body. This objective is realized by the practice of Asanas (postures).
7. A healthy, but not a hypochrondriacal, interest in one's body is engendered.
8. Anxiety produces hyperventilation, and hyperventilation in turn produces anxiety. Yogic physical culture puts a stop to this vicious circle.
9. Mastery of these difficult postures gives one a sense of achievement.
10. As far as is known, Yogic exercises are the only means available for toning up the autonomic nervous system. For instance, Padmasana (Lotus position) stimulates the perineal plexus, and Uddiyana (stomach contraction), the solar plexus (p. 379).

Wenger, et al. (1961b) conducted measurements on resting autonomic functions of "beginning" and "advanced" students of Hatha Yoga, to afford a preliminary test of the claim that practice in Asanas and Pranayama is beneficial to mental and physical health. It was assumed that, if such be the case, autonomic nervous system functions would reflect such benefits by upward shifts in scores of autonomic balance, and shifts in individual variables indicative of decreased sympathetic nervous system activity.

Some of the beginners had had as much as three months of practice; only two of the advanced group had been practicing for more than one year, and most for about six months, and not always regularly. Although no statistically significant differences were found between means for the two groups, no importance was attached to the results since the groups were small and not sufficiently dissimilar in practice.

These results were later compared with results obtained from a second study. For the latter, eight full-time students of Hatha Yoga were available, seven of whom had engaged in almost daily practice for two to seven years. It was found that six out of eleven autonomic

variables being measured showed statistically significant differences, all in the predicted direction of higher mean scores for the more practiced students. Although it may be tempting to argue that this comparison demonstrates one aspect of the beneficial results of Yogic practices, the authors caution that the results should be interpreted conservatively. The two groups differed in other respects than amount of practice. Most of the first group enrolled for training for reasons of physical culture, and few practiced regularly, or for more than one or two hours per day. Most of the latter group were dedicated students of the spiritual aspects of Yoga and practiced daily for two hours or more and also engaged regularly in meditation.

Rao (1962) examined the metabolic cost of various postures assumed during the practice of Hatha Yoga, in particular Shirshasana, or the head stand posture. He found that an increased oxygen consumption took place compared to standing normally erect. His investigation, however, was carried out on medical students who had no Yoga training and were not accomplished in the performance of this Asana.

Datey, et al. (1969) measured the effect of Shavasana ("corpse pose") in the management of hypertension.

They studied forty-seven hypertensive patients ranging in age from twenty-two to sixty-four. The etiology of hypertension was essential in thirty-two patients, renal in twelve, and arteriosclerotic in three. The symptoms in these patients varied. Giddiness was present in thirty, headache in twenty-eight, chest pain in twelve, palpitation in twelve, breathlessness on exertion in ten, exhaustion in ten, insomnia in eight, irritability and nervousness in eight.

The majority of the patients showed improvement in their symptoms after perfecting and practicing the posture each day. Headache, giddiness, nervousness, irritability and insomnia disappeared in almost all the patients. Even the other symptoms became less marked, and it was reported that, in general, the patients experienced a sense of well being after this exercise.

The authors state that in group I (ten patients) the average mean blood pressure of 134mm.Hg. was reduced to 107mm.Hg. (an average reduction of 27mm.Hg.). This was statistically significant at the .05 level. In group II, in the twenty-two patients who were well controlled with drugs, the average mean blood pressure was 102mm.Hg. As the blood pressure was well controlled, no attempt

was made to reduce it further; only the drug requirement was gradually reduced, keeping the mean blood pressure constant. It was possible to reduce the average drug requirement to 32 per cent of the original in thirteen patients (59 per cent of the cases). This is statistically significant. Of the remaining nine patients in whom the drug requirement could not be reduced, six were irregular in performing the exercise but the remaining three were regular. The mean blood pressure after the yogic exercise in this group of twenty-two patients was about the same (102 to 100mm. Hg.). Out of fifteen patients in group III, the drug requirement could be reduced to 29 per cent of the original in six patients (40 per cent). The dose was unchanged in seven (of these, two were regular with their exercise). The average blood pressure after the yogic exercise in this group of fifteen patients had come down from 120 to 110mm. Hg.

The results further evidenced that, of the twenty-two patients who did not respond to this therapy, ten were either irregular or unable to perform the exercise correctly. Hence, failure to obtain a significant response was found in only twelve out of forty-seven patients. One patient, who was reported to be very irregular in the

beginning, responded only after he performed the exercise regularly. Another patient, who was well controlled with this exercise, was not able to perform the exercise regularly for one month and the blood pressure rose to its previous level. The authors state that it could be brought down again after reinstating the exercise and performing regularly.

The authors offer an explanation for the results from the practice of Shavasana. They posit that, while performing this exercise, the subject relaxes with slow, rhythmic diaphragmatic breathing, thereby reducing the frequency and intensity of the proprioceptive and enteroceptive impulses. Further, they state that the individual remains inwardly alert but is less conscious of the external environment. It is therefore postulated that this exercise influences the hypothalamus through the continuous feedback of slow, rhythmic proprioceptive and enteroceptive impulses and tends to set it at a lower level, thereby reducing the blood pressure.

Udupa, et al. (1972a) carefully conducted a physiological, endocrine, metabolic, and neuropsychological study on a group of twelve young, "normal," male volunteers undergoing a six-month systematic training course of Hatha

Yoga. Beneficial results were shown in reduction of body weight and significantly improved pattern of respiratory functions, with lowered rate of respiration, increased rate of expansion of the chest, and increased vital capacity and breath-holding time. They also showed evidence of development of resistance against physical stress in terms of stability of respiratory functions.

The researchers indicated that an endocrine and metabolic assessment of these subjects showed enhanced adrenocortical activity, reduction in serum cholesterol level, reduction in blood sugar level, and increase in the serum proteins. A statistically significant increase in urinary excretion of testosterone was also found. It was noted that increased adrenocortical activity might make these subjects stress-competent.

It is also reported that a neurohumoral and psychological study of these volunteers showed lowered neurohumoral activity, decreased neuroticism, lowered rate of mental fatigability, increased performance quotient, and improved memory quotient. The authors state that the electroencephalogram studies showed prominent alpha waves with fewer spikes, indicating a less-irritable nervous system. They conclude that the practice of Yoga appears

to make an individual mentally more competent.

The authors surmised:

> . . . the Yogic postures appear to have been devised specifically to influence and rehabilitate the vital organs without affecting the muscular functions as is the case with ordinary physical exercises. Thus, they consume little energy and produce maximal physiological efficiency (p. 351).
>
> . . . with physical exercises involving vigorous muscular actions there is disproportionate loss of energy with minimum rehabilitative effect on physiological systems. Only skeletal muscles are affected. In contrast, Yogic practice and stable postures requiring minimum energy consumption and maximum rehabilitative effect on physiological organs and systems. . . . Thus, practice of Yoga has convincing scientific basis. It should be popularized as a means for promoting positive health for a common man in the society (p. 351).

Research in Yogic Meditation

Both Yoga and hypnosis are said to involve a state of trance. The hypnotic trance state has been traditionally regarded as giving rise to "hypnotic phenomena" such as analgesia, hallucination, and amnesia. The Yogic trance state of samadhi, the end result of the practice of Yoga, is a state of deep relaxation or "bliss" stemming from the process of meditation.

Dalal (1969) holds that:

> The samadhi experience is couched in complex and abstract terms, though it is said to be more

> concrete and real than sense experience. The state has been described as a triune experience of supreme Truth-Consciousness-Bliss (Sat-Chit-Ananda) pertaining to an altogether different realm of experience and therefore impossible to describe except by metaphors and paradoxes. However, the most important element of the samadhi experience is thought to lie in the merger of personal consciousness with the Universal Self. The Universal Self, in turn, is conceived paradoxically as both immanent in all forms of existence and as transcending the manifest universe.

Perhaps the closest Western explanations or descriptions come from reports given to us by Maslow (1962), in which a number of individuals have had experience as follows:

> These moments were of pure positive happiness when all doubts, all fears, all inhibitions, all tension, all weaknesses, were left behind. Now self-consciousness was lost. All separateness and distance from the world disappeared. . . . Perhaps most important of all, however, was the report in these experiences of the feeling that they had really seen the ultimate truth, the essence of things, the secret of life, as if veils had been pulled aside (p. 9).

Gellhorn (1972) further acknowledges the benefits of the meditative process:

> The striking production of altered states of consciousness (meditation and ecstasy) by Yoga and Zen Monks--and, more recently, among American students of so-called Transcendental Meditation--has furnished additional examples of the relationship of body relaxation to emotional and cognitive states and suggests possible therapeutic value in the learning of such techniques of altering consciousness (p. 42).

Bagchi, et al. (1957), examining the respiration rate during meditation of fourteen subjects, all trained in Yoga, found that the average rate was thirteen to sixteen per minute. In a few instances it fell to four to six per minute (50-60 per cent of the normal) and in some instances respiration became so shallow that the rate could not be ascertained.

Wenger, et al. (1961b), made recordings on subjects engaged in twenty-five meditation sessions. The median time per session was forty-nine minutes and the range was 14-148 minutes.

The physiological data during relaxation and during meditation for four students of Yoga show greater sympathetic nervous system activity during meditation than during relaxation. The investigators found that heart rate is slower, finger temperature is higher, palm-palm skin conductance is less, indicating less palmar sweating, and both systolic and diastolic blood pressure are lower. The data also show few marked changes in autonomic functions during meditation in five yogis, all older than the students, and all longer in practice.

The researchers note that the older yogis demonstrated faster heart rates during meditation than did the

students, as well as lower finger temperature, greater palmar conductance, and higher blood pressure. All of the differences, they suggest, for these yogis show that the process is an active one, not a passive relaxed contemplation; however, some muscular relaxation is indicated by the decreases in palmar skin conductance--a finding which was typical and deserves particular mention since the expected trend during muscular relaxation is a decrease.

A study to investigate electroencephalographically the activity of the brain during samadhi was undertaken by Anand, et al. (1961b). Two types of Yoga practitioners, who volunteered for the study, were investigated. Four yogis practicing meditation had their EEG recordings taken before as well as during meditation. Two of them were exposed to "external" stimuli which were photic (strong light), auditory (loud banging noise), thermal (touching with hot glass tube), and vibratory (touching with tuning fork). The effect of these on the EEG activity was studied both before and during meditation. One yogi also practiced "pin-pointing of consciousness" (concentrating attention on different points of the vault of the skull).

Two yogis, who had apparently developed increased pain threshold to cold water, were also investigated. It

was reported that they were able to keep their hand in water at four degrees centigrade for forty-five to fifty-five minutes without experiencing any discomfort. Their EEG records were obtained before and during the period when they kept their hand in cold water.

The results show that the yogis had prominent alpha activity in their normal resting records and persistent alpha activity with well-marked increased amplitude modulation during the stage of samadhi.

In both of the yogis who were exposed to "external" stimulation, all the stimuli blocked the alpha rhythm and changed it to a low voltage fast activity when they were not meditating. On the other hand, none of these stimuli produced any blockage of alpha rhythm when the yogis were in samadhi. In the yogi who concentrated attention on different points of the skull, these attempts were accompanied by well-marked "blinking" responses recorded from the frontal electrodes. The EEG records of the two yogis, whose hands were immersed in cold water, also showed persistent alpha activity both before and during the treatment.

Summary

The studies reviewed above indicate that there are measurable changes, in many instances, of reactions ordinarily not subject to voluntary control among many practitioners of Yoga. These cited investigations also pointed to instances where claimed alterations or arrests in organ function failed to be substantiated adequately by the electrical or other measuring instruments employed. The fact that autonomic and emotional effects of Yoga exercises are frequently demonstrated was a prime purpose in presenting these studies. A further purpose was to present, as a background for the present investigation, research exploring links between learned control of specific bodily activities and resultant subjective experiences.

6. Riding the Bull Home

Mounting the bull, slowly I returned homeward.
The voice of my flute intones through the
    evening.
Measuring with hand-beats the pulsating
    harmony, I direct the endless rhythm.
Whoever hears this melody will join me.

(Zen Flesh, Zen Bones, p. 178)

7. The Bull Transcended

Astride the bull, I reach home.
I am serene. The bull too can rest.
The dawn has come. In blissful repose.
Within my thatched dwelling I have abandoned
the whip and rope.

(Zen Flesh, Zen Bones, p. 180)

CHAPTER III

RESEARCH DESIGN AND PROCEDURES

A discussion of the research design, the variables, procedures, instruments, and operational hypotheses follows. The descriptions include the selection of subjects, a discussion of Yoga-therapy group procedures, methods of collecting and processing the data, and methods of reducing the data to relatively independent and nonoverlapping measures.

Research Design

The principal research design employed in this study was that described by Helmstadter (1970), and largely based on the concepts of Campbell and Stanley (1963). It is one of the simplest forms of "true" experimentation used in the study of human behavior incorporating a pre- and posttest control-group design. The paradigm for such a design may be described as follows:

R O X O

R O O

In the above paradigm, the symbol R stands for the process of randomization. The symbol X represents the exposure of a group to an experimental variable which, in the study, is participation in Yoga-therapy. The symbol O refers to some process of observation; in this case, pre-tests and posttests. The three hypotheses in this study were statistically tested utilizing the above design.

Although quite similar to the quasi-experimental designs (Helmstadter, 1970), this approach is different in that the experimental subjects were randomly divided into two groups to be compared, and it was randomly determined which group would serve as the control group and which group would be the experimental group (the one to which the experimental treatment would be applied). The two groups may be said to be equivalent at the time of the initial observations and, when the final observations were made, different only in that the variable under study was applied to one but not the other.

Independent Variable

Membership and participation in a Yoga-therapy group, as opposed to the absence of such membership and

participation, was the only variable purposefully manipulated. A description of the Yoga-therapy group procedures, the teacher, and the members is provided elsewhere in this chapter.

Dependent Variables

Measures of conflict resolution, self-concept, and emotional adjustment were the dependent variables which had hypothesized relationships to the independent variable. Measures of the dependent variables were obtained at the beginning and at the end of the period in which the Yoga-therapy group met. No attempt was made to measure effects beyond the end of the experimental treatment period. Also, no attempt was made to obtain leader reports or third person reports of behavior change either within the group or outside it. All measures, thus, are of the self-report type.

Control Variables

Assuming reasonable similarity between the experimental and control groups, the equivalent group design provides good controls over the main effects of the following sources of internal validity; history (except intra-session history), maturation, testing, instrumentation,

selection, and mortality (Campbell and Stanley, 1963). Since both the experimental and control groups were drawn from the same population of volunteers and randomly assigned, it was assumed that the condition of uniform regression for both groups was met.

Situational Variables

Briefly described, situational variables refer to what the teacher and group members are. In relation to leader-effect, the limited availability of the Ashram and the smallness of group size rendered nonfeasible the utilization of more than one instructor. Consequently, the age, sex, attitudes, values, training, and theoretical orientation of the teacher were not controlled for, and generalizability to other teachers must be assumed with caution. That this condition may have an intervening effect on the results will need to be taken into account in the interpretation of the findings.

The instructor for the present Yoga-therapy course has had over three years' experience in Yoga and has been teaching Kundalini Yoga for over two years. He volunteered his services for this study.

Initially, the prospective subjects responded to advertisements posted at various key locations (eg.,

University of Southern California, University of California at Los Angeles, Los Angeles City College, etc.), describing the format of the course and soliciting participation in the study. The respondents were interviewed individually as a means of discussing with each the content of the course and then screening out those who would not be suitable on the basis of limiting health conditions, schedule conflicts, or concern with ability to meet the demands inherent in the practice of the asanas. Participation was further limited to those who were described as naïve or as having had no prior experience with Kundalini Yoga. Subsequently, the applicant population of eighty-one was reduced to an N of seventy-two. All participants in the present study were volunteers; they undoubtedly differ in some respects from individuals who did not volunteer. As a result of self-selection, then, the degree to which the findings can be generalized to other populations beyond those closely related to the subjects of this study is limited.

Process Variables

Anything that the teacher and students do in the group situation, including all interactions which occur between teacher and class members or among members, may be

labeled process variables.

The possibility that an interaction, unique to this group, transpired between teacher and group members or between members, should be taken into consideration prior to generalizing the results of this study to other populations.

Setting

The twelve Yoga-therapy classes were held at Guru Ram Das Ashram in Los Angeles, California. The Ashram is a building which functions as a residential center for some full-time "devotees" of Kundalini Yoga and as a center where individuals from the surrounding community may participate in Yoga classes

Procedures

Subjects

A stratified random assignment of subjects to groups, and random assignment of groups to experimental and control conditions, were performed providing controls for age, sex, socioeconomic background, attitudes, values and presenting problems.

The experimental group, consisting of twenty-two females and fourteen males, was tested prior to, and then

again after, the course. The control group of twenty-two females and fourteen males was tested at the same times as the experimental group but participated in no Yoga course between the pretest and the posttest. The control group's Yoga-therapy course commenced after the posttest but no further testing was done on this group.

During the course, there was an attrition of nine females and seven males from the experimental group, leaving a balance of thirteen females and seven males. In the control group, there was an attrition of six females and three males. Tests on seven other subjects were randomly selected out of the pool of tests for the comparison group reducing it in number to twenty, the same size as the experimental group. Demographic data concerning the experimental and control groups are provided in Table 1.

Yoga-therapy Course

A total of twelve sessions was held for the Yoga-therapy course. The testing was done on a day prior to the first session and then again on a day following the last session. The twelve class sessions were two hours in length and the group met at the same location and on the same evening and time during each week. All of the sessions were tape-recorded, thus providing a description

TABLE 1

DEMOGRAPHIC VARIABLES FOR EXPERIMENTAL AND CONTROL GROUPS

	Experimental Group (N = 20)	Control Group (N = 20)	Total for Experimental and Control Groups (N = 40)
Sex			
Male	7	9	15
Female	13	11	25
Age			
Range	19-60	18-39	18-60
Mean	32	25.0	28.5
Median	27.0	23.5	25.2
Standard Deviation	11.05	6.64	9.65
Education			
Range	12-22	18-19	12-24
Mean	15.75	15.3	15.5
Median	16.5	15.0	16.0
Standard Deviation	2.34	1.59	1.99

of each session allowing for future replication. An outline of the Yoga-therapy course procedures is presented in Appendix A.

Instruments

In keeping with the general goals of the Yoga-therapy course, instruments were chosen which purport to measure the positive aspects of mental health rather than degrees and varieties of pathology.

The Conflict Resolution Inventory

The Conflict Resolution Inventory (CRI) was developed by Marston and Barrett (1973) as part of a research project being conducted by the Psychology Department of the University of Southern California. The inventory purports to allow the subject to make a self-assessment of his ability to control his behavior in a variety of situations. It is easily administered and scored, and takes only about twenty minutes to complete.

The scale consists of forty descriptive statements (eg., It is Sunday and raining heavily. You attend Church anyway.) The subject responds to each item by rating two seven-point Likert-type scales running from "always" to "never." The first scale is rated in terms of "what I do"

in the situation presented, while the second scale is rated in terms of "what I would like to do" in the situation.

The subject's score is computed as the totaled differences between each of the forty paired scales. The higher the score, the higher the amount of conflict between desired and actual behavior. Stated inferentially, people with low scores tend to have a greater ability to control their behavior in a variety of situations.

Norms.--The norms for the Inventory were obtained from a sample of 200 college students and a sample of 150 female participants in a weight-loss clinic.

Reliability and validity.--The authors' reliability data are based on the above two samples. It is reported that the test-retest coefficient was .78 while the Kuder-Richardson Internal Consistency coefficient was .74. Due to the recency of development of this Inventory, existing data are sparse and validity statistics are nonavailable at this point.

The Tennessee Self-Concept Scale

The Tennessee Self-Concept Scale (TSCS), developed by Fitts (1965), purports to measure positive self-concept

or self-esteem; it was selected for the current study largely for its emphasis on the positive aspects of self. It is also easily administered and the psychometric data reported in the manual and elsewhere supported its choice as a reasonably valid and reliable instrument.

The scale consists of one hundred self-descriptive statements derived from other self-concept measures and individuals' descriptions of themselves. The subject responds to each item by rating a five-point, Likert-type scale which runs from completely false to completely true. Ten of the items are utilized solely for the Self-Criticism Scale. All ten of these items were taken from the L-scale of the Minnesota Multiphasic Personality Inventory (MMPI). A majority of these items are mildly derogatory statements that most people admit as being true for them. The author describes the Self-Criticism Scale as a measure of distortion or defensiveness.

The remaining ninety items are equally divided between forty-five positive and forty-five negative statements in an attempt to minimize the bias of a positive or negative response set. When placed in order, these ninety items form a matrix with three rows and five columns. Each row and each column has a separate score with a separate

Verbal label. The Total Positive score (the sum of either rows or columns) is described by the author as

> . . . the most important single score. It reflects the overall level of self-esteem. People with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth, see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little faith in themselves (Fitts, 1965, p. 2).

In addition to the ten scores described above, the author has developed six empirical scales from item analyses of scores from six different clinically-classified groups. Other measures which are most useful for diagnostic work in a clinical setting are also presented in the manual. Ten scales were not employed in this study since they were determined as nonrelevant to the variables being measured.

Norms.--The norms for the Self-Concept Scale were obtained from a sample of 626 individuals representing males and females, Negroes and Caucasians, and various parts of the country. They ranged from twelve to sixty-eight years in age, and educational background varied from sixth grade through the Ph.D. degree. The means and standard deviations for the norm group may be found in Appendix B. Fitts (1965) reports that it is now possible

to expand the norm group considerably but that he has not done so because data from other populations do not differ significantly from the established norms.

Reliability and validity.--The author's reliability data are based largely on a sample of sixty college students over a two-week period. Eight of the test-retest coefficients are in the .90's, twelve in the .80's, seven in the .70's, and only two in the .60's.

The manual contains extensive validity data of four kinds: (1) content validity, (2) discrimination between groups, (3) correlations with other personality measures, and (4) personality changes under particular conditions. Fitz (1965) has collected data from both extremes of the psychological health continuum: from persons described as high in personality integration to psychiatric patients. Statistical analysis of these data demonstrate highly significant differences (mostly at the .001 level) in the expected directions on almost every score utilized in the scale. Cross-validation evidence from different groups in another part of the country support the author's validity contentions. Correlations with MMPI and Edwards Personal Preference Scale (EPPS) as well as about a dozen other

personality measures are, as Fitts (1965) states, ". . . in ways one would expect from the nature of the scores" (p. 24).

Intercorrelations and item overlap.--Fitts (1965) reported intercorrelations of scale scores from a group of 102 psychiatric patients. The correlations with the Total Positive score ranged from .75 to .95 for row and column scores within the self-esteem matrix. Between the Total Positive Score and the six empirical scales the intercorrelations varied between .47 and .93. Such high level correlations are clearly to be anticipated when it is realized that all items in the subscores are also represented in the Total Positive score.

Questionnaire

During the last testing session, the experimental group was given a 16-item questionnaire of a self-report nature in which subjects were asked about their involvement in and perception of the course experiences. The results of this questionnaire are tabulated in Appendix B.

Data Collection and Recording

Pretests for all dependent variables were

simultaneously administered in accordance with standardized instructions to all subjects in the same room. Posttests were administered to the experimental and comparison groups during the week following the last Yoga-therapy class session.

All Conflict Resolution Inventories were hand scored in accordance with instructions, and the scores were transferred to punched cards for computer analysis. All TSCS tests were sent to Tennessee for machine scoring and the IBM results were in turn transferred to punched cards for computer analysis.

Data Processing and Analysis

The data were analyzed at the University of Southern California Computer Center on an IBM 370-155 computer. Pretest scores were subtracted from posttest scores to achieve a measure of change. These scores were then subjected to a T-test to determine whether significant differences existed between the experimental and control groups with respect to the amount of change between the pre- and posttest period. The level of significance was chosen to be .10.

8. Both Bull and Self Transcended

Whip, rope, person, and bull--all merge in
No-Thing.
This heaven is so vast no message can stain
it.
How may a snowflake exist in a raging fire?
Here are the footprints of the patriarchs.

(Zen Flesh, Zen Bones, p. 182)

9. Reaching the Source

Too many steps have been taken returning to
the root and the source.
Better to have been blind and deaf from the
beginning!
Dwelling in one's true abode, unconcerned
with that without--
The river flows tranquilly on and the
flowers are red.

(Zen Flesh, Zen Bones, p. 184)

CHAPTER IV

PRESENTATION AND DISCUSSION OF THE FINDINGS

The preceding chapter centered on a discussion of the research design, the selection of instruments and variables, as well as the procedures used in conducting the study and analyzing the data. The current chapter focuses on a description of the hypotheses and subhypotheses, a presentation of the findings, and a discussion of the results.

Hypothesis One

Null hypothesis one asserts that Yoga-therapy is not an effective means of stimulating positive change in one's ability to resolve conflict. Stated conversely, the research hypothesis proposes that Yoga-therapy is an effective method of stimulating positive change in participants' ability to resolve conflict.

Findings

The results indicate that there is a significantly greater change for the experimental group in the predicted direction. The null hypothesis is therefore rejected, while the research hypothesis is accepted at the .10 level. Thus, it may be seen that the experimental group made greater gains in ability to resolve conflict between actual and desired behavior.

Hypothesis Two

Null hypothesis two asserts that Yoga-therapy is not an effective method of stimulating positive change in participants' self-concept. Stated conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' self-concept. The ten subhypotheses are presented in Table 3.

Findings

Subhypothesis 2.0, stated in the null form, asserts that Yoga-therapy is not an effective means of stimulating positive change in one's level of self-criticism. The research hypothesis conversely asserts that Yoga-therapy is an effective means of stimulating positive change in one's

TABLE 2

CONFLICT-RESOLUTION MEANS AND STANDARD DEVIATIONS FOR EXPERIMENTAL AND COMPARISON GROUPS AT PRETEST AND POSTTEST; MEANS, STANDARD DEVIATIONS AND t-RATIO FOR GROUP DIFFERENCES BETWEEN TESTS

Variable	Group	Pretest		Posttest		Change			
		Mean	SD	Mean	SD	Mean	SD	t	P
Conflict-Resolution	Experimental	21.65	8.57	16.40	6.64	-5.25	5.78	1.92	.062
	Comparison	22.45	6.84	20.60	7.15	-1.85	5.42		

two-tailed test df = 38
$p < .10$

TABLE 3

SELF-CONCEPT MEANS AND STANDARD DEVIATIONS FOR EXPERIMENTAL AND COMPARISON GROUPS AT PRETEST AND POSTTEST; MEANS, STANDARD DEVIATIONS, AND t-RATIO FOR GROUP DIFFERENCES BETWEEN TESTS

Subhypothesis	Group	Pretest		Posttest		Change			
		Mean	SD	Mean	SD	Mean	SD	t	P
2.0 Self-Criticism	Experimental	38.95	5.80	37.30	6.39	-1.65	4.42	1.61	0.118
	Comparison	35.85	5.20	36.00	4.95	0.15	2.32		
2.1 Self-Esteem	Experimental	329.80	39.49	349.00	43.60	19.20	28.47	-2.25	0.032
	Comparison	327.70	30.09	330.30	29.02	2.60	16.75		
2.2 Identity	Experimental	120.20	14.08	125.45	13.40	5.25	7.52	-1.95	0.059
	Comparison	117.00	10.80	118.20	11.93	1.20	5.46		
2.3 Self-Satisfaction	Experimental	104.35	18.60	111.65	19.44	7.30	12.79	-1.69	0.099
	Comparison	104.90	14.94	105.85	11.65	0.95	10.86		
2.4 Behavior	Experimental	105.25	11.63	111.90	14.67	6.65	12.75	-2.05	0.051
	Comparison	105.80	10.18	106.25	9.34	0.45	4.42		
2.5 Physical Self	Experimental	63.25	11.18	69.95	11.52	6.70	6.09	-3.20	0.003
	Comparison	65.35	6.82	66.35	5.55	1.00	5.13		
2.6 Moral-Ethical Self	Experimental	70.85	8.31	73.95	8.34	3.10	5.47	-1.85	0.077
	Comparison	70.15	7.66	70.05	6.53	-0.10	5.49		

TABLE 3--Continued

Subhypothesis	Group	Pretest		Posttest		Change			
		Mean	SD	Mean	SD	Mean	SD	t	P
2.7 Personal Self	Experimental	60.65	9.14	65.35	9.42	4.70	7.69	-1.85	0.073
	Comparison	62.00	8.05	65.15	8.68	0.80	5.45		
2.8 Family Self	Experimental	67.55	8.99	69.70	9.42	2.15	5.67	-1.48	0.147
	Comparison	65.50	8.83	65.15	8.68	-0.35	4.98		
2.9 Social Self	Experimental	67.50	7.86	70.05	9.11	2.55	7.76	-0.60	0.555
	Comparison	64.70	7.37	65.95	6.36	1.25	5.91		

two-tailed test df = 38
$p < .10$

level of self-criticism. The results indicate that there is no significant difference between the experimental and comparison groups. The research hypothesis is therefore rejected beyond the .10 level, while the null hypothesis is accepted. Thus, it may be seen that the experimental group did not make significantly greater gains on the variable under study.

Subhypothesis 2.1, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' overall level of self-esteem. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' overall level of self-esteem. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gains in level of self-esteem.

Subhypothesis 2.2, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants'

identity. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' identity. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gains in the area of identity.

Subhypothesis 2.3, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' level of self-satisfaction or self-acceptance. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' level of self-satisfaction. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater gains in level of self-acceptance.

Subhypothesis 2.4, as indicated in Table 3, asserts

in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' perception of their own behavior. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' perception of their own behavior. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gains in perception of behavior.

Subhypothesis 2.5, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' perception of their physical self. The research hypothesis conversely predicts that Yoga-therapy is an effective method of stimulating positive change in participants' perception of their physical self. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that

the experimental group made greater positive gains in perception of physical self.

Subhypothesis 2.6, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' moral-ethical self. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' moral-ethical self. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gains in the area of moral-ethical self.

Subhypothesis 2.7, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' sense of personal self. The research hypothesis conversely declares that Yoga-therapy is an effective method of stimulating positive change in participants' perception of personal worth. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore

rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gains in perception of personal worth.

Subhypothesis 2.8, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' family self. Conversely, the research hypothesis predicts that Yoga-therapy is an effective method of stimulating positive change in participants' family self. The results indicate that there is not a significantly greater score change for the experimental group in the expected direction. The research hypothesis is therefore rejected beyond the .10 level while the null hypothesis is accepted. Thus, it may be concluded that the experimental group did not make greater positive gains in feelings of adequacy, worth, and value as a family member.

Subhypothesis 2.9, as indicated in Table 3, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' social self. Conversely, the research hypothesis predicts that Yoga-therapy is an effective method of stimulating positive change in participants' social self. The results

indicate that there is not a significantly greater score change for the experimental group in the expected direction. The research hypothesis is therefore rejected beyond the .10 level while the null hypothesis is accepted. Thus, it may be concluded that the experimental group did not make significantly greater positive gains in feelings of adequacy, worth, and value in social interaction with others.

Hypothesis Three

The third major hypothesis concerns the relationship between emotional adjustment and participation in Yoga-therapy. The research hypothesis states that Yoga-therapy will be an effective method of stimulating positive change in participants' emotional adjustment. The six subhypotheses are presented in Table 4.

Findings

Subhypothesis 3.0, stated in the null form, asserts that Yoga-therapy is not an effective means of stimulating positive change in one's level of Total Conflict. The research hypothesis conversely asserts that Yoga-therapy is an effective means of stimulating positive change in one's level of Total Conflict. The results indicate that there is

TABLE 4

EMOTIONAL-ADJUSTMENT MEANS AND STANDARD DEVIATIONS FOR EXPERIMENTAL AND COMPARISON GROUPS AT PRETEST AND POSTTEST; MEANS, STANDARD DEVIATIONS, AND t-RATIO FOR GROUP DIFFERENCES BETWEEN TESTS

Subhypothesis	Group	Pretest		Posttest		Change			
		Mean	SD	Mean	SD	Mean	SD	t	P
3.0 Total Conflict	Experimental	30.90	8.03	30.10	8.55	-0.80	4.57	-0.33	0.745
	Comparison	28.80	8.75	27.50	10.23	-1.30	5.08		
3.1 Defensive-Positive	Experimental	49.25	10.45	55.30	12.95	6.05	9.20	-2.12	0.041
	Comparison	50.60	10.19	51.40	10.43	0.80	6.14		
3.2 General Maladjustment	Experimental	91.50	11.34	97.10	12.90	5.60	7.04	-2.73	0.010
	Comparison	91.10	7.59	91.70	7.29	0.60	4.21		
3.3 Personality Disorder	Experimental	70.55	9.77	95.55	10.58	5.00	7.50	-2.17	0.036
	Comparison	70.45	9.46	70.55	9.97	0.10	6.74		
3.4 Neurosis	Experimental	74.80	12.35	81.30	13.60	6.50	8.81	-2.41	0.021
	Comparison	75.95	12.01	76.45	12.34	0.50	6.82		
3.5 Personality Integration	Experimental	10.95	3.60	10.80	3.97	-0.15	3.63		0.250
	Comparison	10.30	4.46	11.35	3.62	1.05	2.75		

two-tailed test df = 38
$p < .10$

no significant difference between the experimental and comparison groups. The research hypothesis is therefore rejected beyond the .10 level while the null hypothesis is accepted. Thus, it may be concluded that the experimental group did not make greater positive gains in diminishing its level of Total Conflict.

Subhypothesis 3.1, as indicated in Table 4, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' overall level of defensiveness as measured by the Defensive Positive Scale. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' level of defensiveness. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater gains in reducing its level of defensiveness.

Subhypothesis 3.2, as indicated in Table 4, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' level of General Maladjustment. The research hypothesis

conversely declares that Yoga-therapy is an effective method of stimulating positive change in participants' level of General Maladjustment. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater gains in reducing the level of General Maladjustment.

Subhypothesis 3.3, as indicated in Table 4, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' level of Personality Disorder. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' level of Personality Disorder. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gains in reducing the level of Personality Disorder.

Subhypothesis 3.4, as indicated in Table 4, asserts

in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' level of Neurosis. The research hypothesis conversely predicts that Yoga-therapy is an effective method of stimulating positive change in participants' level of Neurosis. The results indicate that there is significantly greater change for the experimental group in the expected direction. The null hypothesis is therefore rejected while the research hypothesis is accepted at the .10 level. Thus, it may be concluded that the experimental group made greater positive gain in reducing its level of Neurosis.

Subhypothesis 3.5, as indicated in Table 4, asserts in the null form that Yoga-therapy is not an effective method of stimulating positive change in participants' level of Personality Integration. Conversely, the research hypothesis declares that Yoga-therapy is an effective method of stimulating positive change in participants' level of Personality Integration. The results indicate that there is not a significantly greater score change for the experimental group in the expected direction. The research hypothesis is therefore rejected beyond the .10 level while the null hypothesis is accepted. Thus, it may be concluded that the experimental group did not make

greater positive gains in its level of Personality Integration.

Discussion

The results of the experiment raise a number of issues which can be resolved only with further research. Several issues regarding research methodology warrant additional comment which might be clarified with research in subsequent projects. In addition, there are a number of substantive issues raised in this research which demand discussion and further research. In this section results were discussed in view of both methodological and substantive issues with consequent recommendations.

The findings indicate that there are no significant differences between the experimental and comparison groups on the variables of Self-criticism, Family Self, Social Self, Total Conflict, and Personality Integration.

Low scores on the Self-criticism Scale indicate defensiveness, and suggest that the Positive Score Scales which measure self-esteem are probably artificially elevated by defensiveness. High scores generally indicate a normal, healthy openness and capacity for self-criticism. The Self-criticism Scale is "composed of 10 mildly

derogatory statements that most people admit as being true for them" (Fitts, 1965, p. 2).

The means for both groups were high at pretest and remained high at posttest, although the degree of difference is not significant. This indicates that both groups were generally demonstrating a normal and healthy openness for self-criticism. It would naturally be construed from the results that, since the pre- and posttest means for the experimental group exceeded those for the comparison group, there was a greater tendency toward openness and nondefensive self-criticism witnessed in the comparison group and a somewhat more closed capacity for self-criticism in the experimental group. It should be noted, however, that the posttest mean for the experimental group dropped slightly from the pretest mean for the same group and that the posttest mean for the comparison group rose slightly from the pretest mean for the same group. Therefore, the trend appears to be that the experimental group found fewer of the derogatory statements true for them at posttest as a result of participation in Yoga-therapy, while the comparison group, which did not participate in Yoga-therapy, found more of the statements true for them at posttest.

These results might then be more favorably

interpreted as a tendency, in the experimental group, toward a more realistic and flexible capacity for identifying positive changes in areas that were previously self-criticized. It should be restated, however, that these results are statistically nonsignificant.

The research hypotheses are also rejected as nonsignificant on both the variables for Family Self and Social Self. These variables measure one's feelings of adequacy, worth, and value as a family member and as a participant in social interaction with friends and acquaintances. These nonsignificant results might be explained in terms of the solitariness of Yoga. The emphasis is not primarily on aiding the individual in his interactions with others, but rather in creating a greater unity and oneness with the self. The focus is therefore on enabling the individual to get in touch with the self and to enrich one's life from the physiological and meditative practices during periods of solitude. The improved social interaction may result as a secondary gain; though even if it does not, it would seem to be of minor consequence to the primary goal of aiding one in actualizing the energy or capacity for greater affinity with the self.

The Total Conflict Score reflects conflicting

responses to positive and negative items within the same area of self-perception. High Total Conflict Scores indicate confusion, contradiction, and general conflict in self-perception. Low scores have the opposite interpretation, but extremely low scores have a different meaning. The person with very low scores is presenting such an extremely tight and rigid self-description that it becomes suspect as an artificial, defensive stereotype rather than his true self-image. Disturbed people generally score high on this variable, but some also have deviantly low scores depending on the nature and degree of their disorder.

The scores for the experimental and comparison groups on this variable were at the norm mean for both pretest and posttest. The scores dropped slightly from pretest to posttest but still remained near the norm mean indicating a minimum of confusion, contradiction, and general conflict in self-perception for both groups. Though it was hypothesized that there would be significant differences between the two groups at posttest, the fact that these changes did not transpire may be explained by the normalcy of the scores at both pre- and posttest.

The Personality Integration Scale differentiates people with average or better adjustment or degree of

personality integration from those who have below-average or poor personality adjustment.

The scores for the experimental and comparison groups on this variable were also near the norm mean for both pre- and posttests. The score for the experimental group, however, dropped slightly from pretest to posttest while the score for the comparison group increased from pre- to posttest.

Personality Integration may be defined as:

> The organization and unification of a person's motives and dynamic tendencies, resulting in harmonious coaction of these tendencies and the minimizing of inner conflict, or the process whereby the organization is attained . . . (English, 1958, p. 383)

The lack of significant differences between the groups on the variable of Personality Integration may be further speculated about with respect to the above definition. When one is undergoing a process of change, one's personality system is typically found to be open and in a state of disharmony or conflict. As the process terminates, the individual strives to bring closure and organization back into the system, thereby reintegrating the personality.

With regard to the above results, it is possible that the experimental group had not totally integrated the changes transpiring from its involvement in the Yoga-therapy

course. The control group was found to be more integrated at posttest, therefore, as a result of the absence of the change variable. It might be of value, especially with regard to this variable, to replicate the study and administer a third set of posttests, perhaps one to two months after the completion of the course, to determine whether the experimental group would show greater signs of personality integration following the experience.

There are significant differences on the variables of Conflict Resolution, Self-esteem, Identity, Self-satisfaction, Personal Worth, Behavior, Physical Self, Moral-ethical Self, Defensive-positive, General Maladjustment, Personality Disorder, and Neurosis.

Persons who score high on these dimensions tend to like themselves; feel that they are persons of value and worth; have confidence in themselves and act accordingly, assert greater control over their own behavior in a variety of situations; foster a clear and favorable identity and perception of their physical attributes, behavior, and functioning; and operate from a moral and ethical value system. People with low scores are doubtful about their own worth; see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little faith or

confidence in themselves.

It is a basic aim of Yoga-therapy to aid the individual in achieving an ability or assuming greater responsibility, for self-understanding, and self-valuing. Through the meditative practice of Yoga, one is encouraged to tune into himself and seek the oneness with himself and all things. This process is lauded as one which leads an individual to a realization of his union with the Universal Consciousness. Through this realization, one comes to know the source and unlimited supply of one's energy, which, when properly channelized, can induce results engendering a greater sense of self-confidence, personal worth, and identity.

Yoga is also directly involved with the process of building a healthy body, creating stamina, and enhancing longevity (Malhotra, 1963; Wenger, 1961b; Rao, 1962; Datey, 1969; Udupa, 1972). Hatha Yoga, or the physical aspects of Yoga, lays stress on the muscles, nervous system, and organs of the body. Through a system of asanas or exercises, the student can regain the flexibility and suppleness of the body which allow for the activity that is required for day-to-day living.

Yoga enables the person to be his own "psycho-

analyst" and aids one in uncovering the most effective methods for one's own betterment. As the individual practices the asanas and attains greater flexibility and stamina, he also begins to feel differently about himself. As the individual learns about diet and good health, he becomes more careful in terms of what he eats and does to his body. As he studies the philosophy of Yoga, he learns to place importance on aspects of his life which have benefit for, and which encourage, a healthy and happy existence. These, in conjunction with the calming effects derived from the practice of Yoga-therapy, are held to make for greater emotional adjustment.

10. In the World

Barefooted and naked of breast, I mingle
with the people of the world.
My clothes are ragged and dust-laden, and
I am ever blissful.
I use no magic to extend my life;
Now, before me, the dead trees become
alive.

(Zen Flesh, Zen Bones, p. 186)

CHAPTER V

SUMMARY AND SUGGESTIONS FOR FUTURE RESEARCH

This final chapter will review the current study, its findings and conclusions, and present suggestions for future research concerning the use of Yoga as a therapeutic tool.

Summary

The Yoga system of health has been practiced by the yogis in India for thousands of years. As a vehicle for enhancing bodily and mental poise, Yoga is held to produce an equanimity of spirit which benefits the whole nervous system. People everywhere, whose lives are constantly under strain and whose schedules demand top physical fitness and mental alertness, have reportedly learned the value of this system. Yogi Vithaldas (data unobtainable) states that

> Yoga is an ancient and extended system of psychotherapy which claims vast understanding of

> the powers of the mind over the body . . . The postures, breathing exercises and diet induced by Yoga-therapy are intended to bring into being a state of mind attuned to the world around. . . . Yoga aims at that command over the body and mind that is the state of individual existence in which the mind, working smoothly in a healthy body on a high level of consciousness, can observe and control all mental activities on the lower levels. (pp. 27, 30, 31)

Yoga-therapy, then, is a kind of common-sense system. It is apparently applicable to the meeting of physical, mental, emotional, and spiritual needs of man. As such, Yoga-therapy earns the serious consideration of those who are concerned with self-improvement and are dedicated to helping uncover more suitable ways to meet the needs of society.

Purpose

The present study was designed to examine the effects of Yoga-therapy on three main areas: self-concept, conflict-resolution, and emotional-adjustment. The study was confined to those aspects of conflict-resolution measured by the Conflict Resolution Inventory. The study was further confined to those aspects of self-concept and emotional-adjustment measured by the Tennessee Self Concept Scale. It was hypothesized that Yoga-therapy would be effective in stimulating positive change in one's ability

to resolve conflict, in one's self-concept, and in one's emotional adjustment.

Previous Research

The studies reviewed in Chapter II indicate that there are measurable changes in many instances, of reactions ordinarily not subject to voluntary control, among many practitioners of Yoga. These cited investigations also pointed to instances where claimed alterations or arrests in organ function failed to be substantiated adequately by the electrical or other measuring instruments employed. The fact that autonomic and emotional effects of Yoga exercises are frequently demonstrated was a prime purpose in presenting these studies. A further purpose was to present, as a background for the present investigation, research exploring links between learned control of specific bodily activities and resultant subjective experiences.

Research Design and Procedures

The present study may be classified as experimental in nature, incorporating a pretest and posttest experimental and control group design. Membership and participation in a Yoga-therapy group, as opposed to the absence of

such membership and participation, was the only variable purposefully manipulated. Measures of conflict resolution, self-concept, and emotional adjustment were the dependent variables which had hypothesized relationships to the independent variable.

The applicant population of 81 was subsequently reduced to an N of 72. A stratified random assignment of subjects to two groups and random assignment of groups to experimental and control conditions were performed. The instructor for the present Yoga-therapy course volunteered his services.

A total of twelve two-hour sessions was held for the course, with the testing taking place on a day prior to the first session and then on a day following the last session. The tests were scored and the results were transferred to punched cards for computer analysis. Pretest scores were subtracted from posttest scores to achieve a measure of change. These scores were then subjected to a t-test to determine whether significant differences existed between the experimental and control groups within the .10 level of significance.

Findings

Hypothesis One.--Statistical analysis of the data with respect to Yoga-therapy effects on one's ability to resolve conflict revealed that there was a significantly greater change for the experimental group in the predicted direction. The null hypothesis was rejected beyond the .10 level while the research hypothesis was accepted.

Hypothesis Two.--Statistical analysis of the data with respect to Yoga-therapy effects on one's self-concept revealed the following:

The findings indicated that only three of the sub-hypotheses out of the ten were rejected as nonsignificant beyond the .10 level. Therefore, the experimental group made greater positive gains than the comparison group on seven of the self-concept variables under study.

There were no significant differences between the experimental and comparison groups on the variables of Self-criticism, Family-self, and Social-self.

There were significant differences between groups on the variables of Self-esteem, Identity, Self-satisfaction, Personal-worth, Behavior, Physical-self, and Moral-ethical self.

Hypothesis Three.--Statistical analysis of the data with respect to Yoga-therapy effects on one's emotional adjustment revealed the following:

The findings indicated that two out of the six sub-hypotheses were rejected as nonsignificant beyond the .10 level. Therefore, the experimental group made greater positive gains than the comparison group on four of the emotional-adjustment variables under study.

There were no significant differences between the experimental and comparison groups on the variables of Total-conflict and Personality Integration.

There were significant differences between groups on the variables of Defensive-positive, General-maladjustment, Personality-disorder, and Neurosis.

Conclusions

Hypothesis One.--It may be concluded from the results that Yoga-therapy participants demonstrated, in the final analysis, a greater ability to control their behavior in a variety of situations. This might be explained in terms of a calming effect derived from the practice of Yoga, allowing for control over, and channeling of, one's energies into realistic and responsible attempts to meet

bodily and emotional needs.

Hypothesis Two.--The research hypothesis was rejected as nonsignificant on the variable of Self-criticism which is an indication of one's level of defensiveness or openness and capacity for self-criticism.

The means for both groups were high (normal) at pretest and remained high at posttest, revealing that both groups were generally demonstrating a normal and healthy openness for self-criticism. Though the results were nonsignificant, there was a tendency in the experimental group toward a more realistic and flexible capacity for identifying positive changes in areas that were previously self-criticized.

The research hypotheses were also rejected as nonsignificant on the variables for Family-self and Social-self. These results might be explained in terms of the solitariness of Yoga. The emphasis is not primarily on aiding the individual in his interactions with others but rather in creating a greater unity and oneness with the self. Social interaction takes a back seat to the primary aim of aiding one in the process of actualizing the energy or capacity for greater affinity with the self.

There were significant differences on the variables of Self-esteem, Identity, Self-satisfaction, Personal-worth, Behavior, Physical-self, and Moral-ethical Self. These results indicate that there was a greater tendency in the experimental group for liking themselves; feeling that they are persons of value and worth; having confidence in themselves and acting accordingly; fostering a clear and favorable identity and perception of their physical attributes, behavior, and functioning; and operating from a moral and ethical value system. These results are consistent with some of the findings of Malhotra (1963), Wenger (1951b), Rao (1962), Datey (1969), and Udupa (1972).

Hypothesis Three.--The scores for the experimental and comparison groups on the variable of Total-conflict were at the norm mean for both pretest and posttest. This scale reflects conflicting responses to positive and negative items within the same area of self-perception. Since the above pre- and posttest scores for both groups remained very near to the norm mean, a minimum of confusion, contradiction, and general conflict in self-perception was noted throughout.

The scores for the experimental and comparison groups on the variable of Personality Integration, which

differentiates people with average or better adjustment from those who have below average or poor adjustment, were also near the norm mean for both pre- and posttests. The score for the experimental group, however, dropped slightly from pretest to posttest while the score for the comparison group increased from pretest to posttest.

The lack of significant differences between groups on the above variable may be explained with regard to the following. When one is undergoing a process of change, one's personality system is typically found to be open and in a state of flux, disharmony, or possibly even conflict. As the process terminates, the individual strives to bring closure and reorganization back into the system. Thus, it is possible that the experimental group had not totally integrated the changes stemming from their involvement in the Yoga-therapy course. It might be of value, therefore, especially with regard to this variable, to replicate the study and administer a third set of posttests, perhaps one to two months after the completion of the course, to determine whether the experimental group would show greater signs of Personality integration.

The experimental group was found to have made greater positive gains in enhancement of a realistic and

positive self-description, reduction in the levels of General maladjustment, Personality disorder, and Neurosis.

This may be explained as owing to an aim of Yoga-therapy to encourage the individual to be his own "psychoanalyst" and to uncover the most effective methods for one's own betterment. It is claimed that as the individual practices the asanas and attains greater flexibility and stamina he also begins to feel differently about himself. As the individual learns about diet and good health, he becomes more careful in terms of what he eats and does to his body. As he studies the philosophy of Yoga, he learns to place greater importance on aspects of his existence which have benefit for and which encourage a healthy and happy life. These, in conjunction with the calming effects of Yoga-therapy, contribute to greater emotional adjustment.

Suggestions for Future Research

The above results demonstrate evidence that Yoga-therapy has benefit as a psychotherapeutic instrument. With regard to these results and future research in this area, the following studies are presented as possibilities:

1. A study to test the effects of Kundalini Yoga on a variety of populations, such as males,

females, blacks, whites, children, senior citizens, neurotics, psychotics, physically disabled, etc.

2. A study to test the effects of different types of Yoga, i.e., Hatha Yoga, Karma Yoga, etc.
3. A study to test the effects of Yoga-therapy at different stages of participation.
4. A study to test the effects of Yoga-therapy on individuals living in a variety of settings, such as Ashrans, hospital, home, etc.
5. A study to test the effects of Yoga-therapy on hospitalized mental patients or prison inmates.
6. A study to test the effects of Yoga-therapy on heroin addicts or alcoholics.
7. A study using different measuring instruments to test the effects of Yoga-therapy.

A P P E N D I X E S

APPENDIX A

Course Outline: Yoga-therapy

APPENDIX A

OUTLINE OF YOGA-THERAPY COURSE

(Instructor: Baba Phil Hoskins)

The purpose of this outline is to provide the reader with details of the Yoga-therapy course as taught at Guru Ram Das Ashram in Los Angeles during the Winter of 1973. The content of the course has been listed under 12 lessons, as covered in the regular class meetings of two hours each.

Lesson 1

1. Introduction: Yoga philosophy--different aspects of Yoga--goals of the course
2. Pranayama: Deergha Swasam (deep breathing) 5 min.--Kapalabhati (breath of fire) 2 min.--meditative sitting posture.
3. Supine position: pointed toes--knees straight--legs together and raised 6 inches above floor--head raised 6 inches above floor--arms straight with fingers

pointing toward feet--breath of fire, hold position 1 min.

4. Paschimothanasana (posterior-stretching pose or forward-bending pose) 3 min. with breath of fire for first 60 sec.
5. Janusirshasana (head-to-knee pose) 3 min. each leg with breath of fire for first 60 sec. of each 3 min. period.
6. Savasana (corpse pose) 3 min.
7. Bhujangasana (cobra pose) 1 min.
8. Vajrasana (pelvic pose)--spine erect--inhalation, raise shoulders toward ears--exhalation, lower shoulders--3 min.
9. Vajrasana (pelvic pose)--spine erect--inhalation, raise chest toward chin--exhalation, lower chest and head--arch shoulders--3 min.
10. Japa Mantra (chanting)--meditative sitting posture--focus at 3rd eye point--chant S-A-T-A N-A-M-A--5 min. --chant ONG NAMO GURU DEVE NAMO--3 times--silent meditation--3 min.

Lesson 2

1. Japa Mantra (chanting) ONG NAMO GURU DEVE NAMO--3 times

2. Pranayama: Nadi Suddhi (nerve purification breath or alternate nostril breathing) 10 min.--sitting in meditative pose.
3. Lecture: Energy--sleep, rest and relaxation--Kriya (techniques of purification).
4. Supine position: Knees to chest--heels lifted above floor--arms wrapped around legs--hold 3 min.--breath of fire for first 60 sec.
5. Long seat position: Sitting up--legs extended--spine erect--palms on floor next to hips for balance--lift legs to 60 degrees--hold 3 min.--breath of fire for first 60 sec.
6. Savasana (corpse pose)--3 min.
7. Vajrasana (pelvic pose)--hands with fingers interlaced at back of neck--inhale, raise up and arch back--exhale, lower back to beginning position--25 times.
8. Supine position (see Lesson 1.3).
9. Supine position: Knees to chest--heels lifted above floor--nose between knees--breath of fire--2 min.
10. Paschimothanasana (see Lesson 1.4).
11. Chakrasana (wheel pose)--arms behind back--hands on ankles--inhale, raise hips up and arch back--exhale, lower down to beginning position--25 times.

12. Pose of the child--Vajrasana with forward bending--forehead to floor--arms at sides--3 min.
13. Pose of the child--hands on ankles--inhale, raise head and chest off floor--exhale, lower back to beginning position--25 times.
14. Japa Mantra (chanting)--meditative sitting posture--focus at 3rd eye region--chant S-A-T N-A-M--5 min.--silent meditation--5 min.

Lesson 3

1. Japa Mantra (see Lesson 2.1).
2. Vajrasana (pelvic pose)--spine erect--breath of fire for 3 min.--followed by long deep breathing (deergha swasam) for 5 min.
3. Vajrasana (pelvic pose)--spine erect--lean back to 60 degrees--breath of fire 1 min.--followed by deergha swasam for 3 min.
4. Pose of the child (see Lesson 2.12)
5. Vajrasana (pelvic pose)--crow-beak breathing--3 min.
6. Vajrasana--deergha swasam--concentration on mind--5 min.
7. Supine position (see Lesson 1.3).
8. Supine position--legs together and raised above floor 18 inches--inhale, draw right leg back to chest--

exhale, lower right leg--inhale, draw left leg back to chest--exhale, lower left leg--25 times.

9. Supine position--inhale, draw both legs back to chest --exhale, lower legs to beginning position--25 times.
10. Savasana (corpse pose)--5 min.
11. Halasana (plow pose)--3 min.
12. Karnapeetasana (ear-to-knee pose)--3 min.
13. Sarvangasana (shoulder stand)--3 min.
14. Savasana (corpse pose)--3 min.
15. Lecture: Personality--habits--living in a troubled society--"SELF" as central focus--physical aspects of Yoga.
16. Janusirshasana (see Lesson 1.5).
17. Ardha Padmasana (half lotus pose)--deergha swasam (deep breathing) 1 min.--pull moola bandha (anus lock) --hold for 15 sec.--deergha swasam for 1 min.--repeat for 5 min.
18. Japa Mantra (chanting)--sit in ardha padmasana--inhale, meditate on WHAH--exhale, meditate on GURU--5 min.

Lesson 4

1. Japa Mantra (see Lesson 2.1).
2. Supine position (see Lesson 1.3).
3. Lecture: Food--diet--health--purification--pranayama.

4. Bridge pose--breath of fire--3 min.
5. Savasana (corpse pose)--3 min.
6. Platform pose--supine position--raise up on elbows--body straight--heels on floor--head in line with body --breath of fire 60 sec.--deergha swasam 2 min.
7. Savasana--1 min.
8. Padmasana (lotus pose)--hands on knees--inhale, swing torso to right--exhale, swing torso to left--5 min.
9. Vajrasana--spine erect--inhale, slowly with dynamic tension pull fists to chest--exhale, slowly with dynamic tension push fists away from chest--5 times.
10. Japa Mantra--EK ONG KAR SAT NAM SIRI WHAH GURU--20 min.

Lesson 5

1. Japa Mantra (see Lesson 2.1).
2. Supine position (see Lesson 1.3).
3. Supine position (see lesson 2.9)
4. Ardha padmasana (half lotus pose)--arms extended up to 60 degrees--breath of fire--2 min.
5. Badrasana (gentle pose)--2 min.
6. Janusirshasana (see Lesson 1.5).
7. Paschimothanasana (see Lesson 1.4).
8. Padmasana (full lotus pose)--deergha swasam--3 min.

9. Lecture: Life and death--security and insecurity--energy--growth--eternity--sound current--mantra--consciousness.
10. Humming bird breath--sound current meditation--10 min.
11. Japa Mantra (see Lesson 4.10).

Lesson 6

1. Japa Mantra (see Lesson 2.1).
2. Lecture: Truth--how to know God--choosing a way of life--health and happiness--relaxation--communication.
3. Easy pose (cross legged posture)--alternate direction head rolling--3 min. each direction.
4. Cat and Cow--starting position on hands and knees--Cow pose, inhale, lift head and arch back--Cat pose, exhale, lower head and hump back--3 min.
5. Pose of the child--fingers interlaced--arms raised over head--hold for 3 min.
6. Janusirshasana (see Lesson 1.5).
7. Paschimothanasana (see Lesson 1.4).
8. Halasana (plow pose) and Sarvangasana (shoulder stand) --inhale, raise legs to sarvangasana--exhale, lower legs to halasana--10 times.
9. Karnapeetasana (see Lesson 3.12).
10. Savasana--5 min.

11. Frog pose--palms on floor in front of feet--sitting on heels with heels raised, balls of feet on floor--inhale, straighten legs keeping palms on floor--exhale, to beginning position--25 times.
12. Vajrasana--palms together--arms extended straight overhead--inhale, pull moola bandha--exhale, relax down to beginning position--5 min.
13. Japa Mantra--chant S-A-T N-A-M--10 min.

Lesson 7

1. Japa Mantra (see Lesson 2.1).
2. Supine position (see Lesson 1.3).
3. Jack-knife pose--sitting with legs raised to 45 degree and torso leaning back to 45 degrees--arms extended straight in front between legs--breath of fire--3 min.
4. Savasana--3 min.
5. Pose of the Lion--3 min.
6. Vajrasana--spine erect--inhale, lean back to 45 degrees--exhale, return to beginning position--3 min.
7. Easy pose (see Lesson 6.3).
8. Long seat position--blocking right nostril with right large toe (leg supported with hands)--breath of fire --change legs--repeat breath of fire--3 min. each leg.

9. Nadi sudi (see Lesson 2.2).
10. Lecture: Yoga as a way of life--how one chooses to live.
11. Japa Mantra (see Lesson 4.10).

Lesson 8

1. Japa Mantra (see Lesson 2.1).
2. Vâjrasana--hands on knees--lean back to 60 degrees--breath of fire--6 min.--followed by deergha swasam for 5 min.--followed by crow-beak breathing for 2 min.
3. Pose of the child--3 min.
4. Bridge pose--supine position--raise up on soles of feet and palms of hands--torso kept straight--head in line with the torso--breath of fire 3 min.--followed by deergha swasam for 2 min.
5. Savasana--5 min.
6. Lecture: Death and dying--existence--Karma, Maya--reincarnation--one's role in the world.
7. Halasana (see Lesson 3.11).
8. Karnapeetasana (see Lesson 3.12).
9. Sarvangasana (see Lesson 3.13).
10. Janusirshasana (see Lesson 1.5).
11. Paschimothanasana (see Lesson 1.4).

12. Padmasana--breath of fire for 2 min.--followed by deergha swasam for 3 min.
13. Japa Mantra--chant A-C-A-M--10 min.

Lesson 9

1. Japa Mantra (see Lesson 2.1).
2. Easy pose--deergha swasam--10 min.
3. Savasana--3 min.
4. Janusirshasana (see Lesson 1.5).
5. Vajrasana--arms extended in front of body--palms facing each other with 3 inches between--breath of fire 6 min.--concentration on space between palms.
6. Lecture: Love--understanding--family--relationships--sexual union--merging of energy fields.
7. Tantric position--two persons--sitting in easy pose with knees touching--eye to eye--deergha swasam--5 min.
8. Tantric position--two persons--sitting facing each other--legs straight--soles together--join hands--eye to eye--hold position--breath of fire 3 min.
9. Tantric position: Vajrasana--two persons--knees touching--holding hands--eye to eye--one person inhales and leans back while the other exhales and leans forward--repeat 6 min.

10. Japa Mantra (see Lesson 1.10).

Lesson 10

1. Japa Mantra (see Lesson 2.1).
2. Supine position (see Lesson 1.3).
3. Cat and Cow (see Lesson 6.4).
4. Vajrasana (see Lesson 1.9).
5. Savasana--3 min.
6. Lecture: Emotions--love--hate--passion--channeling energy--togetherness.
7. Bhujangasana (see Lesson 1.7).
8. Janusirshasana (see Lesson 1.5).
9. Paschimothanasana (see Lesson 1.4).
10. Savasana--3 min.
11. Sarvangasana (see Lesson 3.13).
12. Halasana (see Lesson 3.11).
13. Karnapeetasana (see Lesson 3.12).
14. Savasana--3 min.
15. Japa Mantra (see Lesson 4.10).

Lesson 11

1. Japa Mantra (see Lesson 2.1).
2. Supine position (see Lesson 1.3).
3. Supine position (see Lesson 2.9).

4. Savasana--3 min.
5. Lecture: Yoga-therapy--course experience--attainment of the goals--how to carry it on--in the service of.
6. Lotus pose--bend forward--touch floor with forehead--exhale--raise body up--inhale--repeat.
7. Lotus pose--deep slow breathing--breath of fire.
8. Janusirshasana (see Lesson 1.5).
9. Paschimothanasana (see Lesson 1.4).
10. Savasana--5 min.
11. Supine position: Long deep breathing--toes pointed--legs lifted 1.5 feet above floor--breath of fire 3 min.
12. Jack-knife pose (see Lesson 7.3).
13. Savasana--5 min.
14. Japa Mantra (see Lesson 4.10).

Lesson 12

This last session consisted of chanting, singing, and prasad or blessed food.

Note: In every class as the students arrive they assume the supine position or a comfortable cross-legged position in which they can breath normally and relax. Each class meeting ends with the singing of the following song:

May the long-time sun shine upon you
And all love surround you.
May the pure light within you
Guide your way on.

The reading list for the course consisted of How to Know God, by Swami Prabhavananda and Christopher Isherwood; Yoga, by Ernest Wood; Be Here Now, by Baba Ram Das; and Peace Lagoon, by Sardarni Premka Kaur.

APPENDIX B

Description and Results of Self-report Questionnaire Administered to the Experimental Group During Posttest

APPENDIX B

SELF-REPORT QUESTIONNAIRE

During the posttest session, the experimental group of twenty students was asked to complete the following self-report questionnaire. The number in parentheses following each item response to each question indicates the number of individuals out of the group of twenty who found the item to be true for them.

1. How many of the weekly classes did you attend?

   a. All of them (2)
   b. Eleven of them (7)
   c. Ten of them (7)
   d. Nine of them (2)
   e. Eight or less (2)

2. If you were absent for one or more of the classes, what was the primary reason?

   a. Sickness (1)
   b. Transportation problems (5)
   c. Lack of interest (1)
   d. Conflicting engagements (10)
   e. Does not apply (3)

3. Approximately how many days per week did you practice the Yoga asanas learned in class?

   a. Seven days/wk. (3)
   b. 5-6 days/wk. (2)
   c. 3-4 days/wk. (4)

d. 1-2 days/wk. (8)
e. Only practiced during class (3)

4. If you found difficulty in practicing at home, the primary reason was:

a. Not enough time (4)
b. What was expected was too much (6)
c. Lack of interest (1)
d. Could not accomplish what was expected (3)
e. Too many distractions (6)

5. Approximately how much time each day did you devote to practicing the Yoga asanas?

a. 2 or more hrs. (1)
b. 1-2 hrs. (10)
c. 30-60 mins. (4)
d. Less than 30 mins. (2)
e. Only practiced during class (3)

6. How much reading on Yoga or related subjects did you do since the beginning of the course?

a. Read all 4 of the suggested books (10)
b. 2-3 of the suggested books (5)
c. One of the suggested books (4)
d. None of the suggested books (1)
e. Read the 4 books plus some additional reading (0)

7. How much did you involve yourself in the Yogic health practices (i.e., diet, cleansing techniques, etc.) discussed in class?

a. Full-time investment (5)
b. Only some of the time (12)
c. None of the time (3)

For items 8 through 10, circle one or more.

8. Due to the Yoga-therapy experience which, if any, of the following ensued:

a. Reduced the amount of sleeping time (5)
b. Cut down or stopped smoking (1)

c. Cut down or stopped using drugs (i.e., marijuana, LSD, barbiturates, etc.) (4)
d. Cut down or stopped using alcohol (4)
e. Cut down or stopped using coffee and/or tea (8)
f. Cut down or stopped eating meat (8)

9. Due to the Yoga-therapy experience which, if any, of the following ensued:

a. Attained greater physical ability (i.e., strength, flexibility and endurance) (13)
b. Feel healthier (10)
c. Attained greater emotional tranquility (10)
d. Attained greater mental alertness and clarity (8)
e. Attained greater spirituality (8)

10. Due to the Yoga-therapy experience which, if any, of the following ensued:

a. Improved self-concept (9)
b. Improved ability to resolve conflict (8)
c. Improved emotional stability (10)
d. Improved relation with family (4)
e. Improved relations with friends (4)
f. Improved ability to function at school and/or on the job (6)

11. What was your impression of the course?

a. Very helpful (1)
b. Fairly helpful (11)
c. Minimally helpful (6)
d. A waste of time (2)

Circle one or more

12. What was your impression of the instructor?

a. Very knowledgeable (10)
b. Fairly knowledgeable (7)
c. Minimally knowledgeable (1)
d. Very helpful (8)
e. Fairly helpful (5)
f. Minimally helpful (2)
g. Discourteous (0)

h.	Discourteous	(0)
i.	Flexible	(4)
j.	Rigid	(2)
k.	Kind	(12)
l.	Harsh	(0)
m.	Realistic	(7)
n.	Unrealistic	(7)
o.	Happy	(12)
p.	Sullen	(0)
q.	Generous	(6)
r.	Pompous	(0)
s.	Dogmatic	(5)
t.	Loving	(9)

13. What are your overall impressions of the Yoga-therapy experience?

a.	Very worthwhile	(13)
b.	Fairly worthwhile	(7)
c.	Minimally helpful	(0)
d.	A waste of time	(0)

Circle one or more

14. Due to your experience would you

a.	Desire to retake the course	(11)
b.	Take an advanced course	(12)
c.	Take no further Yoga courses	(2)
d.	Terminate all interest and practice in Yoga	(0)
e.	Go on to explore other disciplines (i.e. Transcendental Meditation, Zen, etc.)	(7)

B I B L I O G R A P H Y

BIBLIOGRAPHY

Allison, J. "Respiratory Changes During Transcendental Meditation," Lancet, April, 1970, pp. 833-4.

Anand, B., and Chhina, G. "Investigations on Yogis Claiming to Stop Their Heart Beats," Indian Journal of Medical Research, IL (1961a), 90-94.

Anand, B., et al. "Some Aspects of Electroencephalographic Studies in Yogis," Electroencephalography and Clinical Neurophysiology, XIII (1961b), 452-6.

_____. "Studies on Shri Rampnanda Yogi During His Study in an Airtight Box," Indian Journal of Medical Research, IL (1961c), 82-9.

Bagchi, B. K., and Wenger, M. A. "Electrophysiological Correlates of Some Yoga Exercises," Electroencephalography and Clinical Neurophysiology, VII (1957), 132-49.

Benson, H. "Yoga for Drug Abuse," The New England Journal of Medicine, CCLXXXI (1969), 1133.

Brar, H. S. "Yoga and Psychoanalysis," British Journal of Psychiatry, CXVI (February, 1970), 201-6.

Burry, H. C. "Athletic Fitness: Its Role in Prevention of Accidents and Injuries," Practitioner, CCVI (1971), 227-33.

Chakraborty, A. "Yoga and Psychoanalysis," British Journal of Psychiatry, CXVII (October, 1970), 478.

Chusid, J. "Yoga Foot Drop," Journal of the American Medical Association, CCXVII (August, 1971), 827-8.

Chusid, J. "Yoga Power," Journal of the American Medical Association, CCXIX (January, 1972), 385.

Collingwood, T. R., and Willett, L. "The Effects of Physical Training upon Self-concept and Body Attitude," Journal of Clinical Psychology, XXVII (July, 1971), 411-12.

Corrigan, G. E. "Fatal Air Embolism after Yoga Breathing Exercises," Journal of the American Medical Association, CCX (December, 1969), 1923.

Dalal, A. S., and Barber, T. X. "Yogi Feats and Hypnosis in the Light of Empirical Research," American Journal of Clinical Hypnosis, XI (1969), 155-66.

Das, N., and Gastaut, H. "Variations in the Electrical Activity of the Brain, Heart, and Skeletal Muscles During Yogic Meditation and Trance," Electroencephalography and Clinical Neurophysiology, VI (1955), 211-19.

Das, J. "Yoga and Hypnosis," International Journal of Clinical and Experimental Hypnosis, XI (1963), 31-7.

Datey, K. K., et al. "'Shavasan': A Yogic Exercise in the Management of Hypertension," Angiology, XX (1969), 325-33.

Ehrlich, M. P. "The Role of Body Experience in Therapy," The Psychoanalytic Review, LVII (1970), 181-195.

English, Horace, and English, Ava. A Comprehensive Dictionary of Psychological and Psychoanalytical Terms. New York: David McKay Co., Inc., 1968.

Fenz, W. D., and Plapp, J. M. "Voluntary Control of Heart Rate in a Practitioner of Yoga: Negative Findings," Perceptual Motor Skills, XXX (April, 1970) 473-74.

Fitts, William. Tennessee Self Concept Scale (Manual). Nashville, Tennessee, 1965.

Gage, N. L. "Experimental and Quasi-experimental Designs for Research on Teaching," in Handbook of Research on Teaching, by D. H. Campbell and J. C. Stanley. Chicago: Rand McNally, 1963.

Gellhorn, E., and Kiely, W. F. "Mystical States of Consciousness: Neurophysiological and Clinical Aspects," Journal of Nervous Mental Disease, CLIV (June, 1972), 399-405.

Grim, P. F. "Psychotherapy by Somatic Alteration," Mental Hygiene, LIII (July, 1969), 451-8.

Helmstadter, G. C. Research Concepts in Human Behavior. New York: Meredith Corp., 1970.

Hill, T. "Attitude Toward Self," Journal of Educational Sociology, XXX (1957), 395.

Hoenig, J. "Medical Research on Yoga," Confinia Psychiatrica, XI (1968), 69-89.

Kaur, Sardarni Premka. Peace Lagoon. San Rafael, Calif.: Spiritual Community, 1971.

Knowles, F. W. "My Experience in Psychic Healing and Parapsychology," New Zealand Medical Journal, LXXIV (November, 1971), 328-31.

Krishnamurti, J. The First and Last Freedom. New York: Harper, 1954.

Lao Tsu. Tao Te Ching. New York: Vintage Books, 1972.

Malhotra, J. "Yoga and Mental Hygiene," American Journal of Psychotherapy, XVII (1963a), 436-42.

_____. "Yoga and Psychiatry: A Review," Journal of Neuropsychiatry, IV (1963b), 375-85.

Maslow, A. H. "Lessons from the Peak Experiences," Journal of Humanistic Psychology, II (1962), 9-18.

May, Rollo. Love and Will. New York: W. W. Norton, 1969.

McCartney, James. Yoga: The Key to Life. New York: G. P. Dutton & Co., Inc., 1969.

Miles, W. R. "Oxygen Consumption During Three Yoga-type Breathing Patterns," Journal of Applied Physiology, XIX (January, 1964), 75-82.

Prabhavananda, Swami, and Isherwood, Christopher. How to Know God: The Yoga Aphorisms of Patanjali. Hollywood, Calif.: Vedanta Press, 1971.

Ram Das, Baba. Be Here Now. Taos, N. Mex.: Lama Foundation, 1971.

Rao, S. "Metabolic Cost of Headstand Posture," Journal of Applied Physiology, XV (1962), 239-49.

_____. "Oxygen Consumption During Yoga-type Breathing at Altitudes of 520 m. and 3,800 m.," Indian Journal of Medical Research, LVI (1968), 701-5.

Rele, V. G. The Mysterious Kundalini. Bombay, India: D. B. Taraporevala Sons & Co., 1926.

Russell, W. R. "Yoga and the Vertebral Arteries," British Medical Journal, I (11 March, 1972), 685.

Satchidananda, Swami. Integral Yoga Hatha. New York: Holt, Rinehart & Winston, 1970.

Sinha, A. K. "Yoga and Western Psychology," Research Journal of Philosophy and Social Sciences, I (1964), 80-92.

Sinha, T. C. "Observations on the Concept of Ego," International Journal of Psychoanalysis, IL (1968), 413-9.

Suzuki, D. T. Zen Buddhism. Garden City, N. Y.: Doubleday Anchor Books, 1966.

Udupa, K. N., et al. "Studies on Physiological, Endocrine and Metabolic Response to the Practice of Yoga in Young Normal Volunteers," Journal of Research in Indian Medicine, I (1972a), 685.

Udupa, K. N., and Singh, R. H. "The Scientific Basis of Yoga," Journal of the American Medical Association, CCXX (June, 1972b), 1365.

Vakil, R. J. "Remarkable Feat of Endurance by a Yogi Priest," Lancet, December, 1950, p. 871.

Vishnudevananda, Swami. The Complete Illustrated Book of Yoga. New York: Bell Publishing Company, Inc. (n.d.).

Vithaldas, Yogi. The Yoga System of Health and Relief from Tension. New York: Bell Publishing Co., Inc. (n.d.).

Vivekananda, Swami. Raja-Yoga. Calcutta: Modern Art Press, 1951.

Volin, M., and Phelan, N. Yoga for Beauty. New York: Bell Publishing Co., (n.d.).

Wallace, R. K. "Physiological Effects of Transcendental Meditation," Science, CLXVII (March, 1970), 1751-4.

_____, Benson, H., and Wilson, A. F. "A Wakeful Hypometabolic Physiologic State," American Journal of Physiology, CCXXI (September, 1971), 795-9.

Webster's New World Dictionary. Edited by David Guralnik. New York: Popular Library, Inc., 1971.

Wenger, M. A., et al. "Experiments in India on Voluntary Control of the Heart and Pulse," Circulation, XXIV (1961a), 1319-25.

_____, and Bagchi, B. K. "Studies of Autonomic Functions in Practitioners of Yoga in India," Behavioral Science, VI (1961b), 312-23.

Wood, Ernest. Yoga. New York: Penguin Press, 1971.

Zen Flesh, Zen Bones. Compiled by Paul Reps. Rutland, Vt.: Charles E. Tuttle Co., 1970.