# THE EFFECTS OF MEDITATION ON WOMEN WITH RHEUMATOID ARTHRITIS

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## ABSTRACT

This research was designed to measure whether or not meditation would reduce the pain of subjects suffering from Rheumatoid Arthritis. A single subject, removal-of-contingency design was used. Five women with progressive Rheumatoid Arthritis were taught a simple mantra meditation and instructed to meditate for 20 minutes, twice a day. The subjects' pain level was measured three times a week for a period of nine weeks using both the Electronic Dolorimeter and a Visual Analogue Scale. A week of baseline was followed by four weeks of meditation; the subjects were then asked to quit meditating for two weeks following which they returned to meditation for the final two weeks of the study. On the last day of the study the subjects completed a self-report questionnaire. For several of the subjects there was a slight trend towards a lessening of pain with the meditation. The final questionnaire showed an overall very positive subjective experience to the meditation. All subjects reported finding meditation an enjoyable, relaxing, stress-reducing experience. They also reported an increase in their overall sense of personal well-being.

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It warms my heart to realize that this thesis represents an example of the possibilities for change that can happen when sincere people of integrity, intelligence and compassion work together and offer their skills and resources to each other as we all move forward in the hope for genuine human change and healing.

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Dedicated in memoriam to

***Guru Raj Ananda Yogi***

who taught me that the purpose of
a true Guru is to teach you absolutely
that you don't need a guru. He was quite simply
the wisest, kindest, most honest and compassionate
human being I have ever met. I will remain
forever grateful to him for shining such a
beautiful light on my own path.

# CHAPTER 1
# INTRODUCTION

## Statement of the Problem

Rheumatoid Arthritis, (RA), is an autoimmune disease which can effect any joint of the body but is most commonly seen to disfigure and cripple the hands and feet. "Chronic pain is a pervasive symptom" (Parker et al, 1988 p. 593) and many studies have shown that "it [pain relief] remains the most important concern of patients" (Tucker & Kirwan,1991, p. 425).

There is no known cure for this disease. "Other than the symptomatic relief of joint inflammation and the judicious use of remittive drugs, highly effective strategies for managing arthritis pain do not exist" (Parker et al, 1988, p. 593).

Rheumatoid arthritis affects from 0.5 to 1 percent of the people between the ages of 20 and 80 in the United States. Families are also negatively affected along with the victims of this disease. For example for patients with rheumatoid arthritis the divorce rate is 70 percent above that of the general population. The direct cost of medical care for patients with RA in 1983 was $777 million while the indirect cost of loss of productivity was $215 million. The total cost of the disease in 1983 was approximately $1 billion (McDuffie, 1985).

RA is an extremely costly disease, not only monetarily, but also in terms of individual pain and loss of human potential. Due to

to lack of really effective techniques for managing the disease many researchers and patients are looking to alternate forms of pain relief. According to McFarlane & Brooks (1988), "There has been an increasing recognition of the importance of the psychological care of patients with Rheumatoid Arthritis (RA)" (p. 926).

## Purpose of This Study

The purpose of this study is to examine the effects of teaching a simple meditation technique to subjects suffering from chronic rheumatoid arthritic pain. The idea is to see if practising that technique would result in a lessening of the subjects' level of pain; if a psychological technique can positively affect physical pain in the body.

To objectively measure the physical pain, the Electronic Dolorimeter, which measures the degree of pain in a rheumatoid arthritic joint was used. This Dolorimeter was developed through the joint efforts of Dr. C. Atkins and Dr. A. Zielinski at the University of Victoria. A subjective, self-report measure of pain was also taken using a standard Visual Analogue scale.

Although there has never been a published research study done on RA and a traditional Eastern meditation technique like the one to be used in this study, there is an increasing body of research to suggest that RA pain is related to stress. Van Deusen

& Harlowe (1987), for example, state that "Nonpharmacological relaxation procedures have been shown to promote relaxation, increase pain tolerance, and reduce stress" (p. 90).

There is a large volume of research that shows that meditation is a powerful tool for relaxation and the reduction of stress. Hans Selye (1979) pioneer stress expert, pointed out that "The physiological effects seen in Wallace's research (on meditation) were the exact opposite of those caused by stress" (cited in Aron, 1986, p. 10).

RA sufferers become trapped in an escalating cycle of pain - pain creates stress which causes muscular tension which causes more pain which causes more stress. This study will attempt to alleviate pain by using meditation to help subjects relax and thereby reduce the stress component of the cycle.

According to Tucker & Kirwan (1991), "There is clearly room for new approaches to enhance current treatment effectiveness" (p. 422). It is hoped that this research will add to an ever increasing body of knowledge that is pointing to a more holistic view of human healing. This view incorporates Eastern and Western methodologies; psychology and medicine; science and spirituality.

This study has at it's core an attempt to argue for the unification of the "head, heart and spirit" - for a more holistic, balanced and humane approach to the care and healing of the individual.

## Definition of Terms

MEDITATION: "A family of practises that train attention in order to bring mental processes under greater voluntary control. This control is used to cultivate specific mental qualities, such as awareness, concentration, joy, love, and compassion. The ultimate aim of these practises is deep insight into the nature of mind, consciousness, and identity and the development of optimal states of psychological well-being and consciousness" (Walsh, 1989, p. 548).

MYSTICISM: "The perennial philosophy that suggests that the universe is not only interconnected, living, and sacred but also multilayered. That is, the physical universe is not the only domain; there are also domains of mind and spirit" (Walsh, 1990, p. 260).

CONSCIOUSNESS: "A dynamic emergent property of cerebral excitation - the product of the overall functioning of the nervous system taken as a whole" (Roger Sperry cited in Aron, 1986, p. 31).

SPIRITUAL: "Of the spirit or soul... of or consisting of spirit; not corporeal; religious; sacred" (Guralnik, 1979, p. 461).

PSYCHONEUROIMMUNOLOGY (PNI): "The study of the intricate interaction of consciousness (psycho), brain and central nervous system (neuro), and the body's defense against external infection and internal aberrant cell division (immunology)" (Pelletier and Herzing, 1987, p. 29).

RHEUMATOID ARTHRITIS (RA): For the purposes of this paper and to simplify understanding, this term will be used to refer to the form of arthritis the patients in my study have been diagnosed as having according to criteria established by the American Rheumatism Association (ARA). I will limit my study to subjects with 'Progressive' RA. These patients have been diagnosed medically as having RA for at least two years. (C. J. Atkins, Personal Communication, November, 1992).

PAIN: "Defined by the International Association for the Study of Pain, as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage ... the pain of arthritis is best described as acute, persistent, and recurring" (Johnson & Repp, 1984, p. 583).

SUFFERING: "The state of severe distress associated with events that threaten the intactness of the person" (Johnson and Repp, 1984, p. 584).

PATIENT EDUCATION: "...including all planned educational activities aimed at assisting patients in achieving voluntary health behaviour changes. It assumes the acquisition of knowledge, skills, and attitudes in order to effect these changes" ( Green cited in Tucker & Kirwan, 1991, p.422).

PRANAYAMA: A yoga breathing technique, said to revitalize the nervous system by the inhalation of fine currents of 'prana', (a Sanskrit word meaning 'vital energy'). "We can learn to use this energy and store it in the brain,...and use this prana for healing afflicted parts of our bodies and minds" (Temple, 1971, p. 95).

# CHAPTER II

# REVIEW OF RESEARCH

## General Information on Rheumatoid Arthritis

Parker et al (1988), define rheumatoid arthritis (RA) as "a systemic autoimmune disease in which chronic pain is a pervasive symptom" (p. 593). Harris (1989) goes on to say that, "once it is active and chronic in a given individual it will become progressively worse" (p. 943).

According to the Arthritis Foundation (1982) "Arthritis is the most prevalent disabling disease in America today. One in seven people experience symptoms of arthritis....The Rheumatoid form prompts 6.5 million Americans to seek medical attention for relief of RA symptoms each year" (cited in Crosby 1988, p. 452). Harris (1989), estimates an "...incidence of 1 percent of the adult population" (p. 944).

RA effects women much more often than men. According to Harris (1989), "The ratio of female to male patients ranges from 2:1 to 4:1" (p. 906). McDuffie (1985), claims "... an overall ratio of women to men of approximately three to one" (p. 2).

The cause of RA is unknown, however, according to Harris (1989), "An increased prevalence of RA in first degree relatives of patients with RA would indicate that some genetic or environmental factor influences appearance of the disease" (p.

946). Harris (1989), also reported that "There was a graded risk of RA associated with marital status. Single women were at the lowest risk, married women at the highest and women with a failed marriage at intermediate risk" (p. 907). He goes on to say that "...the correlation of less formal education and increased morbidity and mortality of RA has been confirmed" (p. 945).

RA is an extremely costly disease both monetarily and in terms of demand on health services. McDuffie (1985) reported that "...rheumatoid arthritis was responsible for more utilization of physicians and hospital services and more disability than were any of the other conditions, (osteoarthritis, back pain and tendinitis)" (p. 2). Harris (1989) found in his research that, "In 1985 the average annual costs for inpatient and outpatient care of a rheumatoid patient seen only by a rheumatologist were over $2,000" (p.943). Woolley et al (1978) "...have estimated that the total cost for arthritis and back pain will rise to $95 billion by the year 2000" (cited in McDuffie, 1985, p. 3)

RA also has a major monetary impact on the patient, "...six years after onset of disease, average earnings were only 40 percent of what they had been before the illness began", (McDuffie, 1985, p. 3).

RA is a painful, chronic disease, effecting huge numbers of people and costing millions of dollars each year. The cause of RA is unknown and there is no cure. However, according to McFarlane & Brooks (1988), "There has been an increasing

recognition of the importance of the psychological care of patients with rheumatoid arthritis" (p. 926). Creed (1990) notes that "The importance of psychological factors in rheumatoid arthritis has been stressed in numerous publications" (p. 808). According to Strauss et al (1986), "Numerous reports document the emotional and psychological aspects of RA, which include depression, anxiety, irritability, social withdrawal, and dependent and/or compliant personality traits" (p. 1203). Oberai & Kirwan (1988), maintain that "... there can be little doubt about the importance of psychological factors in the way patients cope with their arthritis" (p. 970).

Perhaps Bradley (1989) has the best explanation for why to date there are really so few studies that combine the skills and knowledge of those whose expertise lies in the field of psychology with medical professionals:

> It has been difficult to integrate the psychological adjustment studies into the literature on rheumatic disease because the studies have tended to appear in social and clinical psychology journals that usually are not read by arthritis health professionals. This is an unfortunate situation, since these clinically oriented health professionals would benefit from greater exposure to the theories and data analysis methods used by the social psychologists. (p. 1612)

New methods of treating patients need to be researched. To date, the traditional forms of treatment have not proven highly effective. "Other than the symptomatic relief of joint inflammation and the judicious use of remittive drugs, highly effective strategies for managing arthritis pain do not exist" (Parker, 1988, p. 593). McDuffie (1985) agrees, "Drug treatment continues to be less than satisfactory" (p. 2).

More and more various researchers are calling for alternative means of dealing with the disease. For example, Tucker (1991) says, "For many patients their pain, disability, deformity, and reduced quality of life persist in spite of treatment. There is clearly room for new approaches to enhance current treatment effectiveness" (p. 422). McDuffie (1985) concurs, "...in view of the generally unsatisfactory results of standard medical treatment and the serious economic and social loss resulting from the disease, considerable attention has been given to reducing morbidity by other means" (p. 2).

It is the purpose of this study to bridge that gap and use the psychological technique of meditation to attempt to alleviate both the physical and psychological pain of RA. A study of this nature has not been published before. However, meditation has been the subject of numerous scientific research studies and is becoming a credible intervention for both physical and mental healing.

> The healing benefits of meditation have been the subject of research for over 100 years... Goleman,

> (1974), a Harvard psychologist who studied meditation in India, suggested that meditation is metatherapy because by changing our mental or emotional state we bring about a change in our physical state. Because the nervous system is the repository of all stress, excitement, and anxiety, all life tensions are reflected in our physical state. (Schopen & Freeman, 1992, p. 130)

Meditation is being accepted as a legitimate intervention psychologically as well as physically; "The American Psychological Association formally recognized meditation as facilitative in the therapeutic process in a 1977 position paper" (Kutz, Borysenko, & Benson, 1985, cited in Schopen & Freeman, 1992, p. 129). Smith (1975) found in her research that "some argue that meditation can replace counseling as a healing force or change agent for certain clients" (cited in Schopen & Freeman, 1992, p. 129)

## The Effects of RA on the Body

The effects of RA on the body can be simply conceptualized by imagining the joints of a chicken (G. Mitton, Personal Communication, March, 1992). The cartilage on the end of the bones ( the white shiny material), is basically the same in the human body. There is a bag that surrounds the joint and forms a capsule which, with the muscles, joins the two bones. The bag is attached at approximately the point where the cartilage and the

bone meet. The innermost lining of the bag or capsule is called the synovium which produces the fluid that allows the joint to move smoothly - analogous to how oil acts as a lubricant in a bearing.

In the RA patient the body produces antibodies, but instead of using those antibodies to fight infections, the antibodies literally turn on, and attack its own host body. In particular the antibodies attack the synovium and cause it to produce increased fluid. The joint swells, the synovium thickens, and the swollen joint feels 'boggy' to the touch.

The bone then starts eroding at the point where the synovium joins the bone. Eventually the erosion increases, destroying more and more of the bone and cartilage. This process is very painful, and can eventually lead to crippled and deformed joints.

There are three different clinical courses that RA tends to follow (Smyth cited in Flatt, 1983):

Monocyclic RA: This form of RA accounts for 35% of those diagnosed with the disease. These patients are the lucky ones - they have one episode of the disease - which tends to be severe and painful. However, following this initial 'stage one' of the disease these patients return to normal and remain asymptomatic. A patient who has suffered one intense outburst of RA and remained asymptomatic for a period of two years is considered to be Monocyclic.

Polycyclic RA: This form accounts for 50% of those diagnosed with RA. Here there is an initial, intense, onslaught of the disease, similar to the monocylic patient. However in this case, although the pain and symptoms show a marked decrease after the initial attack, they never return to the pre-RA baseline. Over time there are definite peaks and valleys of the disease with the distance from the baseline slowly increasing.

Progressive RA: This form makes up 15% of diagnosed RA patients. It starts and progresses very slowly but ultimately produces the most devastating effects, as it moves steadily farther and farther away from the baseline of the normal joint.

Conventional medical treatment includes analgesic and anti-inflammatory drugs and preventative measures which include splints, exercises, heat, and nonoperative orthopedics. As the disease progresses, corrective physical therapy and operative orthopedics are considered (Moberg, cited in Flatt, 1983). To be diagnosed as having either polycyclic or progressive RA, a patient must have either a mild or severe onslaught of the disease, and although their symptoms may have fluctuated, they have not returned to a normal baseline over a period of at least two years (D. Naysmith, Personal Communication, February, 1992).

## The Relationship of Stress and Emotions to RA

"It has been hypothesized that excessive emotional stress levels and subsequent stress hormone liberation may contribute to RA disease onset due to the potential damage inflicted on the immune system by catecholamines and cortisol" (Kumar et al, 1981, Rogers et al, 1980, cited in Crosby, 1988, p. 452). The onset of RA is reported to be "...associated with recent termination of marriage, recent family death, and loss of employment" (King & Cobb, 1958, Baker & Brewerton, 1981, cited in Crosby,1988, p. 452). The stress factor most often associated with RA onset was "a threatened or actual loss of a loved one which aroused feelings of rage which the person could not cope with or express" (Schochet, 1969, cited in Crosby, p. 452). According to Harris, (1989), "Data ... make it more difficult to discard as completely unlikely the common association patients make between the onset of their disease and attacks of emotional stress" (p. 906).

Psychiatrist G.F. Solomon and R. Moos of Stanford University, (1964), in a landmark study of women "...demonstrated a link between emotional conflict and the onset and course of RA. Despite a generic predisposition, certain women remained free of disease. 'They were all emotionally healthy,' Soloman recalls of the disease-free group. 'They were not depressed. They were not alienated. They had good marriages. We felt emotional health protected them from R.A.'" (Soloman cited in Hall, 1989, p. 66).

Research seems to point to the fact that while stress may effect the function of the immune system, it is the psychological processes that ultimately mediate the immunological impact. According to Lebet (1985) "Our attitudes, perceptions and personality traits may have direct consequences on whether a stressor is able to affect the body" (cited in Pelletier & Herzing, 1987, p. 36). Crosby (1988) states that, "When subjected to stressful stimuli, one perceives stress factors and initiates coping strategies which may result in adaption or partial adaption. Partial adaption yields a state of residual stress" (p.453). The personality factors that have been correlated with RA are: perfectionism, compliance, subservience, nervousness, restlessness, reserve and anger ( Pelletier & Herzing, 1987).

The majority of research relating RA and emotional stress has concentrated on stressful life events and the <u>onset</u> of the disease. "There has been very little research designed to investigate the relationship between stressful life events and RA disease activity once the disease has become established" (Crosby,1988, p. 452).

Crosby (1988) designed her research to show the relationship between daily stress factors, emotional stress levels and established R.A. disease activity. She used a model of a feedback loop to explain how R.A. and stress are related. In the feedback loop the stressful stimulus is the initiating event. The person perceives the stimulus as stressful and, because it lacks

alternative coping strategies, the body releases stress hormones. "Stress hormones may have a significant and potentially destructive effect on the immune response of individuals with RA" (Kumar et al, 1981, Armakraut & Soloman 1975, cited in Crosby, 1988, p. 453).

The release of stress hormones produces tension in the muscles which results in pain. The pain of RA itself then becomes a major stress stimuli which feeds the loop and results in increased levels of pain. "The joint inflammation and pain may become a second stress factor that will perpetuate the feed back loop" (Crosby, 1988, p. 453). The loop will continue until an intervention occurs and the stressful stimuli are reduced or eliminated.

According to Sethi (1982), "The intensity of stress depends on how well we perceive we can deal with that event and develop coping strategies" (p. 267). Hans Selye, a pioneer in stress research, developed a three stage model of the coping response which he called the General Adaption Syndrome; "The initial response is alarm, followed by resistance, 'a chemical rallying of the body's defenses', and if the stressor continues exhaustion sets in, as the defence system gradually wears down", (Selye cited in Sethi, 1982, p. 267).

Pelletier & Herzing (1987) point out that, "Chronic sustained Type II stress has a more detrimental effect on health and immunity than does acute short-term Type I stress, but there are

still insufficient data to conclusively evaluate the relative immunological impact of chronic versus acute stressors" (p. 35).

Researchers have modified Selye's definition of stress to emphasize that it results from three inter-related parameters: "(1) response, (2) stimulus, and (3) a combination of stimulus-response reactions" (Sethi, 1982, p. 267). Sethi(1982), also makes the point that it is not just the stressful stimulus that produces stress but also the fact that "The individual's appraisal system plays a key role in stress management" (p. 267). How an individual makes his or her individual appraisals will depend a lot on his/her personal history. According to Goldman (1985), "Since life consists of a continual series of transitions, encounters, challenges, and adaptions, the individual's accumulated successes or failures contribute to the mounting level of harmful stress affecting his health" ( p. 105). For example, in studies of identical twins discordant for RA, "...a history of psychologic stress was more common in the affected twin", (Harris,1989, p. 946). Crosby, (1988), in her research found that "...emotional stress was positively related to the physical manifestations of R.A." (p. 460).

The thymus gland has been proven to be vitally important in the stress response system of the body. Selye, (cited in Barber, 1988), "found that the thymus acted as a virtual barometer of stress - it withered away in direct relation to the amount of stress animals experienced" (p. 106). According to Hall, (cited in Barber, 1988), "it, [the thymus], has been identified as an important

regulator of immune response. The 'master gland of the immune system'..." (p. 106).

Based on her research, Crosby, (1988), made a strong plea for health care providers to "acknowledge and treat emotional stress as a related factor in RA disease" (p.460). This study uses the stress-reduction technique of meditation to teach RA sufferers a simple psychological method to attempt to both reduce the stressful stimulus and breach the feedback loop that results in pain itself becoming the stimulus for more pain.

## The Immune Sytem

Hall (1989) notes that "More than three centuries ago Rene Decartes began a metaphysical journey that "culminated in his most famous assertion - that the mind and the body are segregated into two separate branches of worldly existence" (p. 65). Descartes' separation of the mind and the body has formed, for the most part, the underlying premise of medicine up until fairly recently. However, that model is now under attack. For example, Pelletier & Herzing (1987), state that "Data from the emerging field of psychoneuroimmunology and related disciplines increasingly indicate the existence of a mindbody continuum rather than the anachronistic split of Cartesian dualism" (p. 49).

It would be a mistake, however, to think that this is a new idea. "Aristotle was among the first to suggest the connection

between mood and health, ' Soul and body, I suggest, react sympathetically upon each other'" (Hall, 1989, p. 65). Sir William Osler, considered the 'father of modern medicine', remarked, "The care of tuberculosis depends more on what the patient has in his head than what he has in his chest", (Hall, 1989, p. 66). Hall (1989) includes Charles Darwin with Aristotle and Osler as an impressive trio who "...were all struck by the apparent connection between mind and body, emotions and health" (p. 66).

There are numerous modern scientists, "...like Blaloch, Pert and Ruff (who) are prepared to declare a revolution. The barricades they seek to tear down separate nothing less than the mind and the body" (Hall, 1989, p. 64). Pelletier & Herzing (1987), point out that "Continuity of the mind body system is supported by models in the natural sciences with particular reference to quantum physics"(p. 28).

Modern research is focusing on the human immune system; its relationship to health and its association to the brain. "Perhaps the most important mechanism for survival is the way the body preserves health and fends off disease, which is the province of the immune system... What all this work has established is that there are the molecular equivalent of telephone lines between the brain and immune system" (Hall, 1989, p. 68).

More and more researchers are beginning to recognize the immune system as a vitally important link in understanding the mind/body connection; "The immune system is a sensory organ as

much as the eyes or ears. The immune system serves to recognize and sense those things you can't hear or taste or touch or smell or feel, things that are not recognized by any of the other senses ...The system is sophisticated enough to "remember" any invader, which is why vaccination works - it gives the immune system something to lodge in its memory cells" (Hall, 1989, p. 69). "The findings have led one researcher to speculate that the immune system may be nothing less than the brain's 'sixth sense'" (Barber, 1988, p. 92). Pelletier & Herzing (1987), describe the immune cells as actors in a play, "Immune system cells are analagous to actors playing out a role of reciprocal communications and exchange of information between other immune cells and between the immune system and the nervous system...suggests the existence of a complex communicative and interactive system between the brain and immune system" (p. 29).

This whole area of research on the effect of the brain on the immune system is basically part of a new and controversial discipline, Psychoneuroimunology (PNI) which seeks to prove the link between the mind and the body. PNI was formalized by Robert Ader as a term and a discipline. There is no uniform agreement on terms and definitions but it is generally hypothesized that "PNI interactions are bidirectional with consciousness assuming at least equal causation with molecules, that not all states of health or disease necessarily involve PNI

processes, and that there are infinitely more unresolved issues than premature answers at this time" (Pelletier & Herzing, 1987, p. 29). They go on to say that "some researchers see the PNI research as an outgrowth of long-standing stress research while others see it as a new and separate field of inquiry" (p. 31). According to Hall, (1989), "...many - perhaps the majority - in the scientific and medical communities view these developments with wariness, if not out-right disbelief. Part of this skepticism is the legacy of overblown, unsubstantiated claims connecting stress with illness or certain personality traits with cancer" (p. 70).

Although a new, ill-defined and controversial area PNI is attracting impressive support in the scientific community. For example, Nobel Laureate, Roger Sperry, states, "Instead of excluding mind and spirit, as had been the rule for all of us in brain - behavior science for many decades, my new logic required that mental and 'spiritual' forces be reinstated at the top of the brain's causal control hierarchy as real interactive 'emergent' properties of brain processes and given primacy in determining what a person is and does" (cited in Pelletier and Herzing, 1987, p. 29).

Barber (1988), states that "...both the clinicians and the basic researchers in the new field agree that what was once medical folklore is rapidly becoming scientific fact" (p. 94). Pelletier and Herzing, (1987), maintain that "...the influence of psychological and psychosocial factors may well determine the immunological

consequences of exposure to a variety of "invading" stressors, psychological as well as physical.... Human consciousness is one of the possible regulators of the immune system and needs to be given prominent consideration" (p. 30).

While most of us have an intuitive sense that our mind and emotions effect our bodies and physical health we are just at the early stages of being able to 'prove' that relationship. "Everybody has a vague sense that emotions influence disease ... but in order to understand it mechanistically we have to explain human behavior on a chemical basis and we just don't have the horses to do that yet" (Felten, cited in Barber, 1988, p. 103). However, we do have ever an ever increasing body of research to suggest that we are on the right track with PNI research.

Nicholas Hall, a leading spokesperson for PNI, humorously defended PNI at an 8 a.m. lecture to a group of conservative immunologists. He began by reading some of the steamiest passages from Lady Chatterley's Lover. He then asked, "if you can arouse the reproductive axis with purely mental processes, why can't you do the same with the immune system?" (Hall cited in Barber, 1988, p. 106).

This study, on the effect of meditation on RA, could be considered as being under the general umbrella of PNI research. RA is a painful, crippling, and costly immune disease that is effecting millions of people each year. There is no cure and the current treatment methods are less than satisfactory. Researchers

and experts in the field are calling for new and creative interventions; particularly ones that acknowledge the effect of the mind on the body.

RA would also seem to be a good place to focus an investigation of the mind/body link as it relates to chronic disease overall. According to Tucker & Kirwan (1991) "RA, a common and serious condition, can be viewed as a model for chronic disease in general" (p. 422).

RA research is a fertile ground for the combined efforts of psychological and medical science; "psychoneuroimmunolgy is a fascinating research area that may help us to better understand the pathophysiology of RA and improve our treatment methods" (Bradley, 1989, p. 1613).

## Pain and Suffering

According to Parker et al (1989), "Studies have shown that pain relief is a primary concern of patients with RA. RA patients face the formidable challenge of coping with pain that is chronic, unpredictable, and frequently severe" (p. 984). They go on to say "...if RA patients believe that they can effectively manage their pain they would be expected to exhibit more coping efforts, display better emotional adjustment, and retain more functional capacity" (p. 989).

Brunner and Suddarth define pain tolerance as the "intensity of pain a person is willing to accept without seeking relief" (cited in Johnson & Repp, 1984, p. 584). Mastrovito also point out that "The appreciation of pain is influenced by such psychological factors as one's emotional state, personality, past experiences and psychological defense mechanisms" (cited in Johnson & Repp, 1984, p. 584).

Varni(1981), maintains that "Pain has been conceptualized as containing both physical and psychological components, with their relative contribution to perceived pain varying across individuals" (p. 183). According to Johnson & Repp, (1984) "...the emotional aspects of pain help to explain why pain threshold and pain tolerance may vary from person to person" (p. 584).

Lovell and Walco (1989) report that "Pain has been found to be an important factor in the overall health status and health behavior of adults with inflammatory arthritis. Disability and pain are the main fears of patients with rheumatoid arthritis and make up as much as two thirds of the adverse impact of the disease" (p. 1016).

Johnson & Repp (1984), maintain that the way the individual responds to pain is through suffering and it is the degree to which a patient 'suffers' from pain that is the key to the psychologic aspect of pain. "It is suffering that is observable and promotes attempts to provide relief ... some stated that suffering ... seemed to begin even before the pain and included many

anticipatory fears that sometimes were even more acute than the eventual pain" (p. 584).

Cassel, (cited in Johnson & Repp, 1984), reported that "Persons perceive pain as a threat to their continued existence -- not merely to their lives but to their integrity as persons. That this is the relation of pain to suffering is strongly suggested by the fact that suffering can be relieved, in the presence of continued pain, by making the source of the pain known, changing its meaning, and demonstrating that it can be controlled and that an end is in sight" (p. 584).

However with a disease such as RA there is no end in sight, in fact the opposite is true; the chances are that the pain and disability will increase. Because of that fact, "Pain also has been documented as a major stressor for patients with RA" (Parker et al 1990, p.1016). In other words pain traps the RA patient in two ways: (1) the physical feedback loop where pain creates muscle tension which causes more pain which causes more tension etc. and, (2) the psychological problem of suffering caused by the fear of facing a chronic disease of unknown origin, a bleak future, and (with the exception of drugs and surgery) limited interventions that help the person regain a sense of personal control over his or her life. It could be described as a kind of psychological feedback loop where fear and lack of control results in greater 'suffering' in response to pain which in turns leads to an increased perception

of pain which leads to more fear and a greater sense of lack of control which leads to more suffering.

The underlying premises of this research study on the effects of meditation on patients with RA are: (1) there is no mind /body split - both the mind and the body of an individual must be considered in order to attempt to heal a patient suffering from RA. (2) both physical and psychological pain must be addressed in a chronic disease like RA because both forms of pain result in 'feedback loops' where the pain itself becomes the stimulus for greater suffering and loss of control. (3) there is a profound need to teach patients skills that will increase their ability to deal with both the physical and psychological stress of RA in an effort to mitigate against the tremendous effects of pain and lack of personal control of their lives; "Improvements in such areas as "control over pain" and ability to decrease pain imply benefits in the area of self-efficacy. Self-efficacy refers to the belief that one can master a specific situation" (Parker et al, 1988, p. 599).

Parker et al (1988), supports such a wholistic, educational approach when he states, "Improvements in self-efficacy are related to positive outcomes following patient education. An increase in the beliefs by RA patients that they can cope with the pain of their disease appears to help them avoid the "learned helplessness" pattern to which they appear to be vulnerable"(p. 599).

Johnson & Repp (1984) also support new approaches to RA treatment, "Nonpharmacologic pain management focuses upon increasing the patient's tolerance to pain and decreasing the suffering in situations where it may not be possible to eliminate or even alleviate the pain sensation. It focuses on pain in the context of the total person" (p. 584). They go on to make the point that "Pain tends to draw attention to itself; if the patient is made less aware of the pain or pays less attention to it he naturally will be less bothered by it and be more tolerant" (p. 590).

According to Van Deusen & Harlowe (1987), "Non-pharmacological relaxation procedures have been shown to promote relaxation, increase pain tolerance, and reduce stress" (p. 90). Lovell and Walco (1989), found in their research that "Preliminary data indicate that there is great short-term benefit of these strategies because virtually all subjects have been able to dramatically reduce the level of subjective pain as measured by visual analogue scales" (p. 1023).

The intervention used in this study was a traditional Eastern mantra meditation. Although a thorough search of the literature was unable to produce even one research article where such an intervention has been used specifically with RA patients, there are many references to meditation being used for pain relief. For example, "Meditation is used in pain management for chronic pain..." (Boerstler & Kornfeld, 1987, p. 32). The following section

will deal with some of the latest information on the current state of the research on meditation.

## Meditation

According to Smith & Womack (1987), "Meditation has been part of Eastern and Western spiritual practise for centuries" (p. 582). It has roots in the mystic traditions of religions worldwide. "Meditation is often related to mysticism, and mysticism has a strong history throughout Christianity and all other major world religions... The early Christian church developed many meditative techniques that are comparable to those of the East" (Schopen & Freeman, 1992, p. 125). They go on to say "The history of meditation in the West, and of its expression in the lives and writings of famous mystics, is strangely silent from the end of the 19th century on -- that is, until it bursts on the scene again in the 1960's" (p. 125).

Carpenter (1977), says, "Although Hinduism is the historical progenitor of most of the meditative disciplines, it is Buddhism its more youthful offspring, that has been the direct inspiration for many of the applications of meditative components to modern psychotherapy" (cited in Schopen & Freeman, 1992, p. 123) According to Driskill (1989), "The interest (in meditation) was generated in part from the behaviorists in relation to the study of

progressive relaxation, systematic desensitization, and stress management" (cited in Schopen and Freeman, 1992, p. 129).

Although meditation has its roots in spiritual and mystical traditions "the practise of meditation requires no particular belief system" (Smith & Womack, 1987, p. 582). Luck (1989) makes the same point, "No special beliefs, attitudes or lifestyle, are needed, nor does one need to be free of skepticism. Anyone can do it and benefit" (p. 40).

According to (Schopen & Freeman, 1992):

> Eastern meditation promotes freedom from ideas or concentrated thought...the one underlying principle common to all forms of meditation- Eastern and Western - is not the content but the process of seeking presence....The attitude, the seeking, the pursuit of a different state, the effort of attention, or the effort of inattention - these traits are characteristic of all forms of meditation in that they are descriptive of a process relative to the mental and physical state. (p.128)

Meditation is <u>the</u> therapeutic tool of the East and of other mystic traditions but has a different goal than traditional Western science. Weber (1986), states the difference most clearly when she states that, "The most obvious difference is methodology. Science is quantitative, mysticism qualitative. Science has a

rigorous and formalized methodology, mathematics. The methodology of mysticism is meditation. Science seeks mastery over gross matter, mysticism over subtle matter" (p. 8). Boerstler & Kornfeld (1987), compare the difference to western psychotherapy; "Traditional psychotherapy focuses on the content of consciousness in the mind, whereas meditation changes consciousness itself" (p. 32).

Most of the research done on meditation to date has been done on Transcendental Meditation. "Transcendental Meditation (TM) is a highly standardized mental procedure introduced by Maharishi Mahesh Yogi, and it has been used in the majority of meditation studies" (Eppley et al, 1989, p. 959). It is, however, important to remember that, "Psychological researchers have yet to wade through the vast sea of theological and cultural knowledge and determine one near - perfect form of meditation appropriate to psychology" (Schopen & Freeman, 1992, p. 129).

A traditional method of meditation has been used in this study - one that has been passed down through the centuries from teacher to student in the ancient Hindu tradition. Although some modifications have been made, it is basically the initial technique taught by the 'American Meditation Society'. This is a method that was brought to the West by Guru Raj Ananda Yogi, a traditional Eastern mystic and teacher. It is the bias of the researcher that, "It is not entirely implausible that even rough, rule-of-thumb experimentation over centuries might produce

more consistent empirical results than inventions by researchers based only on a few years of investigation" (Eppley et al, 1989, p. 972).

The method used is referred to as a 'mantra meditation'. "The technique involves both a mantra, or meaningless sound selected for its value in facilitating the transcending or settling-down process, and a specific procedure for using it mentally without effort, again to facilitate transcending" (Alexander et al, 1989, p. 953). According to Smith & Womack (1987), "The type (of meditation), that is most applicable to the medical setting is concentrative meditation. This involves narrowly focusing the attention onto a sound or symbol" (p. 582). They are referring here to a mantra meditation.

According to Alexander et al (1989), "Through this procedure, a 'fourth major state of consciousness' can be regularly experienced ... This state is also traditionally described as 'pure' consciousness in that it is said to be experienced as a purely content - free, silent state of awareness" (p. 950). Wallace (1970) "...concluded he was studying a "fourth major state of consciousness (besides sleeping, dreaming and ordinary wakefulness) that is physiologically and biochemically quite unique" (cited in Aron, 1986, p. 9). Gelderloos et al, (1990), describes a state where "all mental activity is transcended, yet a clear awareness remains as transcendental or pure consciousness" (p. 179).

Maharishi (1986), "referred to transcendental consciousness as the unified field of consciousness, which he described as identical to the unified field of matter as postulated by supersymmetric unified quantum field theories such as the superstring theory" (cited in Gelderloos et al, 1990, p. 180). Stace,1960, referred to this state as "...undifferentiated unity and deemed it (transcendental consciousness) to be the highest form of mysticism - 'introvertive mysticism'" (cited in Gelderloos et al, 1990, p. 180).

Weber (1986), makes a fascinating point when she states that "I reflect on the irony that, if the search for unity is intrinsic to science, an unsettling possibility suggests itself. By the criterion of unity, science may be less 'scientific' than mysticism, which aims at a more comprehensive unification" (p. 10).

Alexander et al (1989), explain that "In this state knower, known, and process of knowing are said to converge in one unified field of consciousness, in which subjects report a self - referral state of being aware simply of awareness itself" (p. 950). They go on to point out that this knowledge is not new in the west. Early in this century William James, one of the 'fathers of modern American psychology', "suggested that exceptional states could be systematically cultivated, and he pointed particularly to the ancient Indian tradition of yoga as a source of such practises" (p. 950).

Depending on one's perspective the experience of 'transcending' can be described quite differently. Gelderloos et al (1990), make the point that:

> From the perspective of psychoanalysis, we could say that meditators become more aware of their unconscious, and through repeated practise develop an enhanced reconciliation between unconscious forces and the ego. Cognitive therapists may explain that the state of 'feeling good' during meditation could translate into more positive self-talk outside meditation. From a developmental point of view, Alexander et al (1990) suggest that the experience of transcending can be viewed as a developmental technology that enlivens subtler levels of the mind, resulting in further physiological integration and hence in the unfreezing of the developmental process. (p. 194)

However one chooses to describe the experience or from what perspective they describe the effects of the ability to 'transcend' through meditation, "There is strong evidence that meditation is a healing agent to the human spirit ....Counselling expanded its parameters of interventions to include meditation because the meditative process is reported to have therapeutic healing power" (Schopen & Freeman, 1992, p. 130). According to Gelderloos et al (1990), "One of the repeatedly observed

correlations was that of a high level of psychological health with instances of transcending experiences" (p. 178).

## Meditation and Stress

There have been many interesting studies done on the impact of meditation on stress. Benson (1975) developed the theory of the 'relaxation response'. According to him "each of us possesses a natural and innate protective mechanism against 'overstress' which allows us to turn off harmful bodily effects, to counter the effects of the flight or fight response. This response against 'overstress' brings on bodily changes that decrease heart rate, lower metabolism, decrease the rate of breathing, and bring the body back into what is probably a healthier balance" (cited in Johnson & Repp, 1984, p. 586). Benson maintains that the 'relaxation response' has been associated with an altered state of consciousness and can be achieved through meditation.

Luck (1989), points out that meditation "...gives profound rest to the mind and body, which according to research is twice as deep as that of deep sleep. This depth of rest dissolves stress and fatigue, leaving one feeling relaxed, refreshed and ready to enjoy the rest of the day more fully ...the mind remains fully alert. Correspondingly, the body experiences a very deep state of relaxation through which stress gets dissolved and the body's

healing mechanisms begin to correct any existing imbalances" (p. 40).

Schopen & Freeman (1992), make the point that "Through the use of meditation, it is possible to move into a state of nonattachment, where stressful events are noted but are not associated with tension or emotion" They go on to add that "A related benefit to meditation is that it is accompanied by a metabolic decrease in lactate during and after meditation. This decrease is reflected in more neutral responses to emotional stress, allowing the meditator to remain calm and relaxed in situations that would normally cause anxiety and tension" (p. 130).

Much of the research done on meditation and health has produced extremely positive results. In a five year study in the USA it was shown that people who meditate have 50% less illness than non-meditators (Luck, 1989). Emmons (1978) "Indicated that some of the advantages (of meditation) include increased ability to relax, decreased tension and anxiety, fewer fear responses, greater self-confidence, decreased physical pain, and relief from psychosomatic complaints" (cited in Schopen & Freeman, 1992, p. 131) The research has proved so positive that in Holland "...one of the leading insurance companies gives a 30% discount to meditators" (Luck, 1989, p. 41).

Schopen & Freeman (1992), make an important point when they say. "Equally important, teaching the meditative process to

clients may endow them with a preventive tool that can be used to help them deal with future stress" (p. 131). All of this research points to meditation as being an extremely powerful tool to relax mentally and physically and reduce the destructive effects of stress.

According to Johnson and Repp (1984) the benefits of relaxation and the resulting stress reduction have been identified as:

> (1) it reduces muscular tension; (2) it occupies one's attention, short circuiting much of the discomfort; (3) it reduces anxiety, which further helps reduce tension (4) it provides one with something one can do before, during, or after experiencing pain, especially when the pain is at a low intensity; and (5) it helps one get needed rest and sleep... Reduction in anxiety is accompanied by decreased muscle tension and lessening of pain in the joint areas (in RA). (p. 588)

Pelletier & Peper (1976) "provided unequivocal evidence that adept meditators could voluntarily control pain, bleeding, and infection from self-inflicted puncture wounds" Their research also showed that "...a practised individual can voluntarily regulate a specific immune response through meditation and visualization" (cited in Pelletier & Herzing, 1987, p. 38).

According to Schopen & Freeman (1992), "....experimental studies with meditators indicate clearly that clients perceive

meditation as beneficial to mental health" (p. 131). One way that mental health is improved is through greater feelings of self-efficacy. "Meditation increases the sense of having control over one's life" (Sethi, 1982, p. 269).

Alexander et al (1989), make an important point when they say "The great advantage of practising a self-referential mental technique is that it opens the possibility of empowerment from within" (p. 961). Meditation is the oldest and most widely used form of self-referential mental technique. According to Walsh(1989), there are over 100 million practitioners of various meditation techniques today and a history of practise that goes back over 3,000 years. He goes on to state that "Meditation has been more thoroughly researched than all therapies except behavioral therapies" (p. 550).

This research study will teach the simple skill of mantra meditation to patients with RA in order to help them relax, physically and mentally and to provide them with a coping technique to deal with stress; to hopefully give them a method to claim personal control and responsibility for their own healing process and ultimately become more empowered human beings. "As the patient increases self-help skills, there will be a concurrent decrease in the feelings of helplessness, a renewed feeling of wellness, and a decrease in suffering" (Johnson & Repp, 1984, p. 585).

Based on the research on pain, stress and their relationship to RA this study takes the stand that there is more than sufficient evidence pointing to the possibility that practising a daily meditation technique could also, in fact, result in a lessening of pain and 'suffering', physically, mentally and emotionally and contribute to an increase in quality of life for people with RA. "Therapeutic benefit shown by an improvement in the 'quality of life' must remain the final arbiter of efficacy"(Tucker & Kirwan,1991, p. 424).

This study will hopefully contribute to the literature by including the use of the practise of meditation, as a possible source of pain relief for people who are suffering from the painful, chronic disease of Rheumatoid Arthritis. The lack of a cure, the use of powerful, largely ineffective and often harmful drugs to deal with the pain all contribute to the call from many sources for more noninvasive, nonpharmachological interventions as options to help people face and deal with the reality of this chronic disease.

Hopefully this research will contribute to the knowledge of alternative healing options.

## The Research Hypotheses

Null Hypothesis #1

Meditation, (as taught in this study), will have no effect on pain levels in the RA subjects as measured by the Electronic Dolorimeter.

Alternative Hypothesis #1

Meditation, (as taught in this study), will have a positive directional effect on pain levels in RA patients as measured by the Electronic Dolorimeter.

Null Hypothesis #2

Meditation will have no effect on pain levels in RA subjects as measured subjectively using the Visual Analogue Scale.

Alternative Hypothesis #2

Meditation will have a positive directional effect on pain levels as measured subjectively by the Visual Analogue Scale.

# Chapter III

# METHODS

## Population

The five subjects chosen for this study were all female between 28 and 41 years of age with a mean age of 34 years. They have all been medically diagnosed as having progressive arthritis for a minimum of at least two years.

Subjects were found in one of two ways. Five different medical doctors known to the researcher were sent letters and information packages. (see Appendix I). One of the subjects was chosen because of a referral from her doctor.

The other four subjects were found through an advertisement in the classified section of the local newspaper. The ad ran daily for a period of two weeks. During that time approximately 50 people responded to the ad. The researcher screened the callers on the basis of age, sex, degree of disability, availability for testing, apparent level of interest, physical proximity and having had no previous experience with a formal meditation technique. Information packages were then sent to the interested parties. The following week personal interviews were arranged with the researcher. The researcher then chose the five subjects based on her perception of each person's willingness to participate fully and the likelihood they would complete the study and get value from it.

Each subject was fully informed they would be expected to meditate twice a day, except during baseline and removal of contingency phases, and to be available for testing three times a week. They were also informed that they could, if they so desired, drop out of the study at any time. They were asked to sign a 'Subjects Consent Form', (see Appendix I) acknowledging that they had been fully informed and had consented to participate in the study. They were also required to get their personal physicians to sign a 'Family Physician Consent Form', (see Appendix I), acknowledging that their physician knew and consented to their participation.

Two subjects had university degrees, one had one year of college, and two had grade 12. Two women are married, one is in a common-law relationship, one is separated and one is single. Of the five only two have children. In the area of employment, only one is employed full time, (as a secretary); two are on welfare, (one is actively looking for work, the other is a single mother with two young children), one is a part-time student taking prerequisites for graduate school, and one is a full-time wife, mother and artist. Four women take various drugs for their disease while one woman remains drug free. The length of time the subjects have had the disease varies from 2 1/2 to 20 years with an mean of 10.5 years. Only one of the subjects has had physical erosion of her joints, and she has had corrective plastic surgery. Three subjects have a known family history of the

disease. One subject is in personal therapy to deal with childhood trauma, three subjects belong to RA support groups, and one subject has changed her diet completely and has found that relates positively to her disease symptoms. None of the subjects has been taught a formal meditation technique.

# TABLE I

## Subject Profile

| Subject | Age | Marital Status | Education | Employment Status | Children | Length of time since diagnosis | Erosion | Corrective Surgery | Drugs used | Family History |
|---|---|---|---|---|---|---|---|---|---|---|
| #1 | 41 | married 20 yrs. | B.A. | wife/mother/artist | two, age 19 & 14 | 2 1/2 yrs. | NIL | NIL | none | 3 aunts mom's side, 3 gr. aunts & gr. grandma |
| #2 | 35 | common law 1 yr. | B.Ed. | part time student | none | 17 yrs. | hands, feet, shoulder, wrists, elbows, knee | knuckle replacement right hand | orudis methal trexate preona-zone | none |
| #3 | 37 | Separated 5 yrs. | 1 yr. college | single mom (GAIN) | two, age 9 & 10 | 6 1/2 yrs. | NIL | synovial membrane removed from rt. knee | preona-zone voltar-en | none |
| #4 | 28 | married 5 yrs. | Grade 12 | full time secretary | none | 20 yrs. | NIL | NIL | ridaura froben | mother |
| #5 | 31 | single | grade 12 | unemployed | none | 7 yrs. | NIL | NIL | ansaid | grandma |

## Research Design

This study was set up as a nine week, 'Single Subject Removal of Contingency Design'. Week One (September 28 to October 4, 1992) was the baseline week where the subjects were tested on four separate occasions. At the beginning of Week Two (October 4), in the home of the research assistant, Jo-Marie Baker, the subjects, as a group, were first given a lecture on the history and principles of meditation and then taught to meditate. They were asked at this time that if for any reason they saw another subject, for the duration of the research, they refrain from any discussion of the study.

For Weeks Two through Five the subjects were asked to meditate twice a day for approximately 15 minutes using the pranayama breathing technique both before and after their meditations. They were measured three times a week, at the same time of day. The only exception for the duration of the study were Thanksgiving and Remembrance Day where no measurements were taken.

With the exception of one subject the researcher went to the subjects homes or offices twice a week for measurements, which for the most part consisted of a very quick approximately 15 minutes of testing. Once a week the subjects would come to the researcher's home where they were allotted one hour for any questions, help or support they needed as they learned the

discipline of meditation. The sessions varied from discussions of their experiences, to answering questions, to 'checking' their meditations, (a process whereby the researcher would actually meditate with the subjects). One subject did not have a car and for the duration of the study the researcher went to her home all three times a week.

At the end of Week Five, on October 30th, subjects were instructed to quit meditating and doing the pranayama breathing technique entirely for the next two weeks, (Weeks Six and Seven). The researcher continued testing as usual during this time.

On November 13th, the subjects were asked to resume meditating and doing pranayama for the final two weeks, (Weeks Eight and Nine). The testing continued three times a week as usual. The final date of testing was November 27th, 1992.

## Measurement Instruments

### The Electronic Dolorimeter

In order to be able to tell whether or not meditation affects the level of pain in RA patients, it was necessary to have a reliable, objective and efficient method of measuring pain levels. The Electronic Dolorimeter provided the researcher with a state-of-the-art instrument to objectively measure pain.

The same researcher measured each subject three times a week using the Electronic Dolorimeter. This machine was

developed jointly by Dr. C. Atkins, M.D., F.R.C.P. (U.K., C.) Head, Division of Rheumatology, Greater Victoria Hospital Society, and Consultant to Arthritis Society, B.C. and Yukon Division; and Dr. A. Zielinski, Ph.D., Professor, Faculty of Electrical and Computer Engineering, University of Victoria.

According to Bombardier and Tugwell (1985) "Measurement of joint tenderness is essential for the assessment of disease activity in rheumatoid arthritis" (cited in Atkins et al, 1992, p. 1). The 'joint count' is the conventional method of measuring joint tenderness, (ARA, 1968, cited in Atkins, 1992). Unfortunately this method lacks fine precision (O'Sullivan et al, 1987, Hart et al, 1985, cited in Atkins, 1992). Atkins et al (1992) states "We have developed an Electronic Dolorimeter which combines the fine motor and sensory attributes of the examiner's fingers with the precision of measurements made with pressure-type gauges" (p. 1). "A pressure sensor is positioned on the investigator's thumb, which is used to palpate the patient's joint" (Atkins et al, 1992, p. 1).

The machine was shown to have high inter-observer agreement. It also has the advantage that it is convenient and simple to use and requires only 10 minutes of training. It "maintains the sensory attributes of the clinician's fingers, while linking the sensory features to a quantitative measure of the pressure generated by manual palpation ... will correctly and consistently identify smaller changes in degrees of joint

tenderness than has been previously been possible" (Atkins et al, 1992, p. 4).

Each subject was measured, using the Electronic Dolorimeter, at ten data points on each hand plus one other measurement of a joint of their own choosing. The ten data points represented the ten standard joints in each hand and wrist typically tested in RA. Beginning on October 7th each subject was also measured on their most painful joint. The mean averages of the 10 data points of each hand and the most painful joint data constituted this measure.

Unfortunately, there is no baseline for the most painful joint. The decision to use it was made as a result of subjects making the point that while their hands had pain they experienced a greater degree of pain elsewhere. On the advice of Dr. Atkins each subject was asked to identify the joint that caused them the most pain overall and the precise location of that joint was marked with a felt marker to insure that for the duration of the study the measurement was taken at exactly the same point.

## The Visual Analogue Scale

The Visual Analogue Scale is considered to be a reliable method of measuring self-reported pain levels. According to Parker et al (1988) "This scale has been found to be an excellent measure of self-reported pain" (p. 595). Before each measurement with the Electronic Dolorimeter each subject was

asked to fill out the scale. The scale was designed to have the same ratings as the Dolorimeter; zero indicating no pain at all and six indicating extreme pain.

Subjects were asked to give a rating each for their left hand, right hand, and estimate of their overall pain level. The researcher wanted to have a measure of subjective pain to measure against the results of the Electronic Dolorimeter instrument (see Appendix II).

**The Weekly Meditation Chart**

Beginning the first day of meditation (October 5th), each subject was given a weekly meditation chart and asked to keep track of how often they actually meditated. (see Appendix II). They were asked to mark the applicable box daily when they meditated. The charts were collected each Monday and a new one given out.

There were several reasons for using the chart. The most obvious was to have a record of how often they actually meditated over the course of the study. It was also seen to be a support tool to help remind and focus them on the new skill of daily meditation and to let them see clearly when they missed. It also proved to be valuable to the researcher to be able to see quickly if they were having any difficulties and, if so, address them immediately.

## The Questionnaire

On the last day of the research each subject was asked to fill in a questionnaire (see Appendix II). The researcher wanted an opportunity to get feedback from the participants as to how they would rate the value of the meditation they had been taught, how they would describe the experience of meditating as well as their experiences of being in the study.

## The Intervention

The meditation taught in this study is a very simple mantra meditation. Although based on the techniques of Guru Raj Ananda Yogi, as taught by the American Meditation Society, the meditation was taught in a generic way as a simple skill with very little reference to an Eastern guru or belief system.

The researcher met with Dr. Roopa Morasani, head of teacher training for the American Meditation Society, and the senior executives of the society in St. Louis, Missouri, in November, 1991, and again in Vermont in August,1992. The purpose of these meetings was to develop a method of teaching that retained the integrity of the meditation style while at the same time presented meditation in a generic way. The researcher feels that such a method makes the skill of meditation more easily accessible to a greater number of people.

The subjects were taught the four basic elements necessary for a successful experience with meditation. They are 1) a quiet

environment with no interruptions; 2) an object to dwell on - in this case a mantra, a meaningless Sanskrit word; 3) a positive, effortless, let it happen attitude; 4) a comfortable position.

A great deal of time was spent both initially and over the nine weeks of testing ensuring that the subjects understood that meditation is done in an effortless, spontaneous manner. Effort or concentration is not only not required but is in fact detrimental to both the effectiveness and the enjoyment of meditation. Meditation is basically a process of thinking that is paradoxically both spontaneous and intentional. The subject is taught to direct their thoughts but in a completely effortless manner. The reseacher also used 'checking techniques' while meditating with the subject to ensure that they were practicing the technique correctly.

It is extremely important that traditional meditation techniques be taught only by trained, experienced meditation teachers. The researcher is in complete agreement with Schopen & Freeman (1992) when they say "As with all counseling interventions, meditation should be used with professional care and only when it is appropriate for the particular client" (p. 133).

The subjects were also taught pranayama, a simple yogic breathing technique which is helpful to use before and after meditation as a sort of transitional step. According to Johnson & Repp (1984), "Benefits of breathing exercises include increased oxygenation, calming of the nerves, and restfulness. The

breathing centers in the brain have a close relationship with the reticular activating system; therefore, constant, steady, restful breathing promotes relaxation" (p. 589). Sethi (1982), also notes that "Breath awareness is known to be helpful in stress management" (p. 270) The technique taught takes approximately three minutes.

**Debriefing and Follow-up**

Two weeks after the end of the study the researcher hosted a debriefing and completion evening for all the participants. The evening began with a group meditation.

Each subject was given a copy of the graphs of their individual results from both the Dolorimeter and Visual Analogue scales as well as a copy of 'From Darkness to Light' (Anderson & Morasani, 1987) that looks in depth at the philosophy underlying Eastern meditation techniques.

A discussion ensued where the subjects had a chance to talk about their own experiences and hear about the experiences of the other participants. They were also given a chance to ask the researcher questions regarding the set up of the study as well as meditation in general. They were made aware of various options available should they desire to pursue meditation further.

# CHAPTER IV

# RESULTS

## Subject #1

The results of meditation according to the Electronic Dolorimeter (see Figure 1) showed very little change throughout the study for the left and right hands. The reading for her most painful joint (left hip) shows a marked decrease in pain level during the initial meditation phase. The level appears to begin to rise and plateau when she stops meditating, reaches a peak the next reading after she resumes meditating and then falls off again quite dramatically.

It is unfortunate that we do not have a baseline for the most painful joint, however, it does appear as if on at least this one measure she is showing considerably less pain than the initial reading of 6. It is also important to note that prior to beginning the meditation she was taking approximately six aspirins a day. She found that her pain was reduced sufficiently while she was meditating that she stopped taking any aspirin. During the removal of contingency phase she resumed taking aspirin and quit again when she began to meditate once more. Certainly in terms of the most painful joint it would therefore appear as if the meditation did have a positive effect on her pain.

In Subject One's Visual Analogue Scale (see Figure 2) once again there is little apparent change in her self-reported level of pain. The readings for the left and right hand remain fairly

consistent throughout. Her self-reported overall pain level would seem to show a reduction throughout the study, however during the removal of contingency phase it remained stable and did not go up. This may be a result of her decision to resume taking pain medication. However it is important to notice that here overall pain level is considerably lowered by the end of the study.

For Subject #1 the bar graph of the mean scores from the Dolorimeter would not indicate much of a difference, however the left hip is definitely showing less pain in the final phase of the meditation(see Figure 3). The pain levels in the left and right hands go up in the reversal phase and then down again in the final meditation phase. However they remain almost the same from baseline to the initial meditation phase.

In the bar graph of the mean Visual Analogue scores (see Figure 4) we can see clearly that every pain measure has been lowered by the end of the study. The left and right hand levels perform as would have been predicted if the meditation was having a positive effect on her pain; the levels go down during the first meditation phase, up during reversal and down again during the final meditation phase. While the overall pain is considerably less than in the baseline it does not show an increase during reversal as would be expected. This may have been due to the fact that the subject resumed taking pain medication for that period.

In her questionnaire at the end of the study (see Appendix III) Subject One rated the personal value she received from

meditating at a nine on a ten point scale. She stated that meditating did have a positive effect on her pain level. She says that during the period when she was asked to stop meditating she felt more emotionally frazzled and physically exhausted. She goes on to say that she finds that it is helping her release stress from early and traumatic childhood experiences, it is making artistic insights more available to her, and that she physically feels more rested. She adds that from her point of view the study was too short and she feels that a longer study would be more likely to be able to show a difference in her overall well-being.

According to a tabulation of her weekly meditation chart Subject One meditated 74% of the required twice daily meditations.

Figure 1.Electronic Dolorimeter Scale
Subject 1

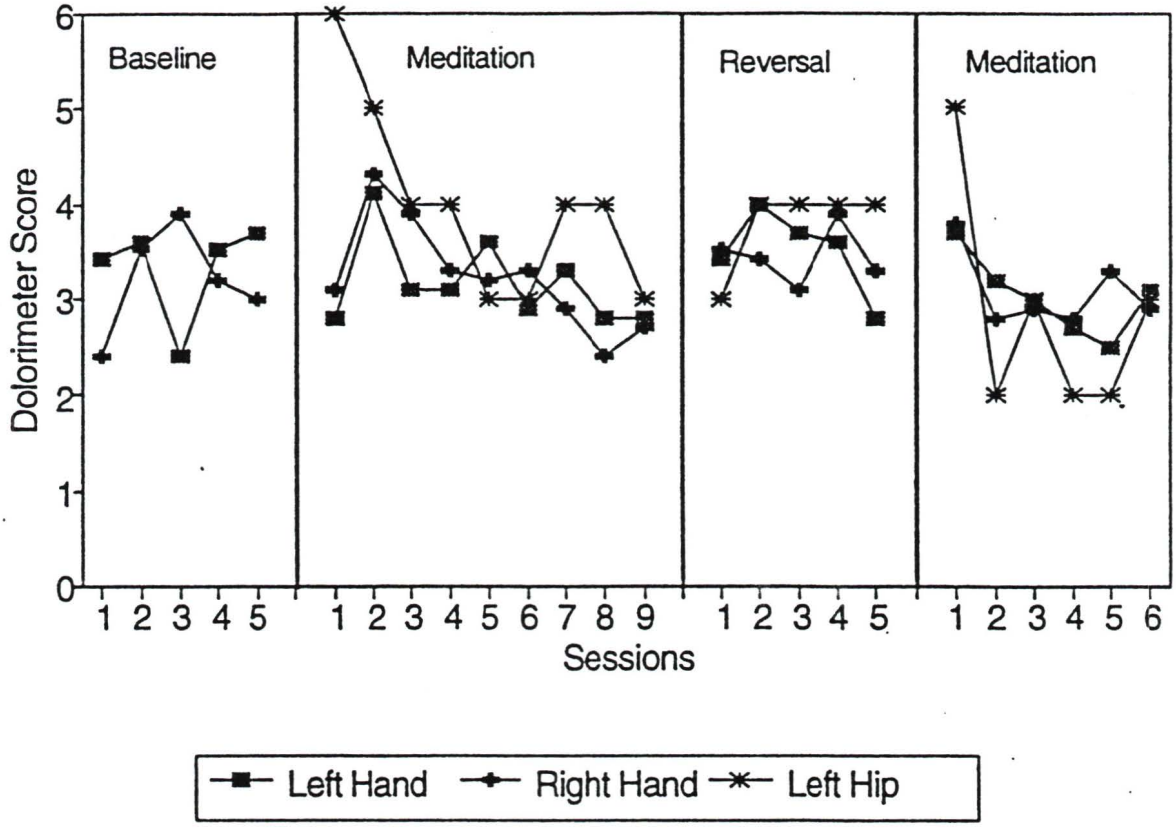


Figure 2. Visual Analogue Scale
Subject 1

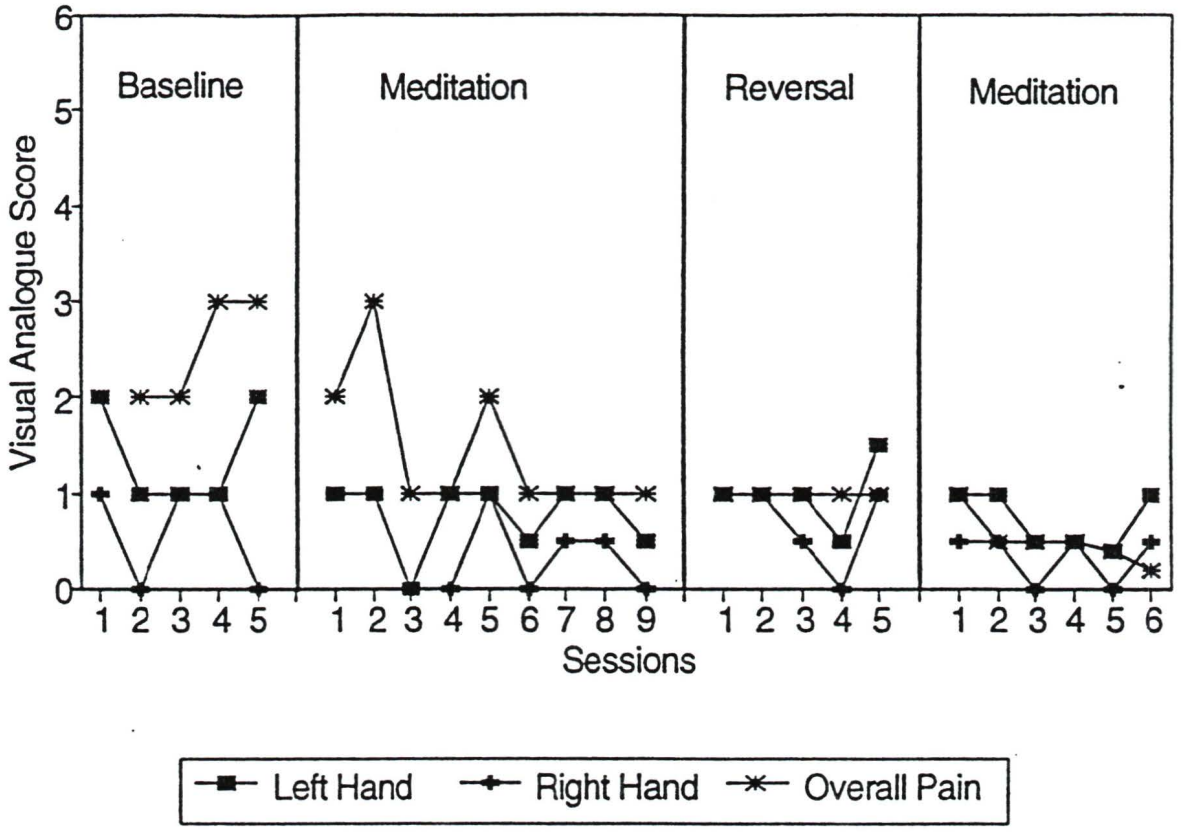


Figure 3. Electronic Dolorimeter
Mean Scores per Condition - Subject 1

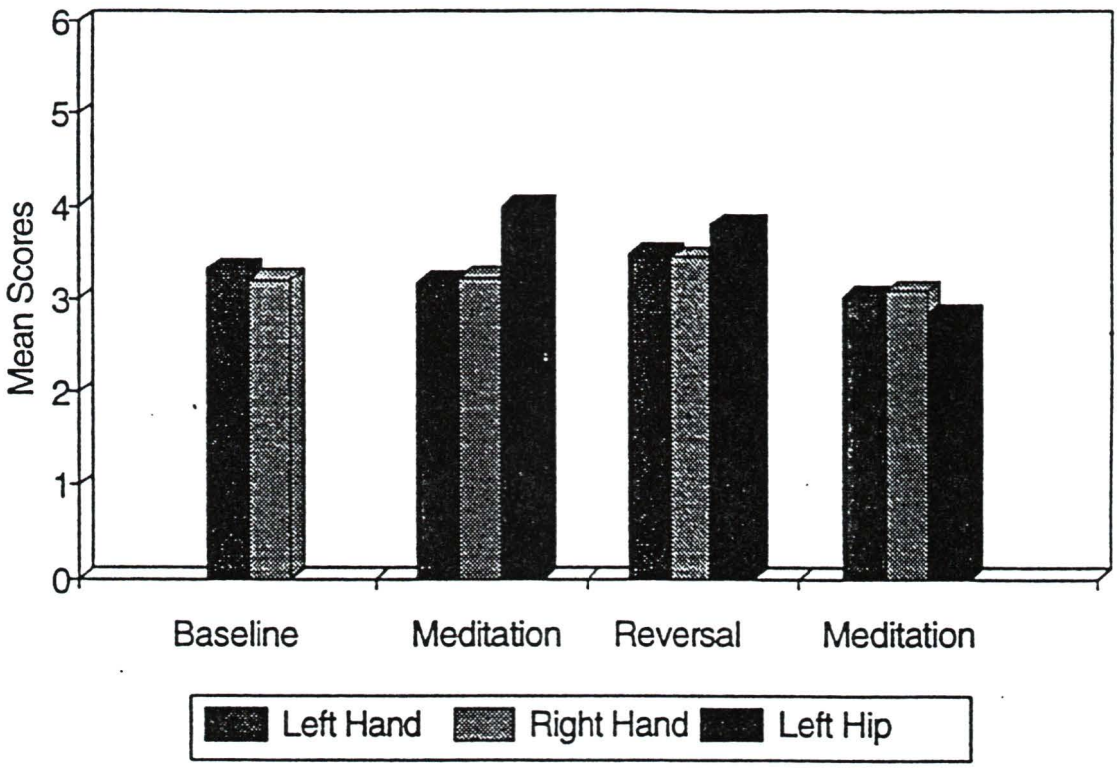
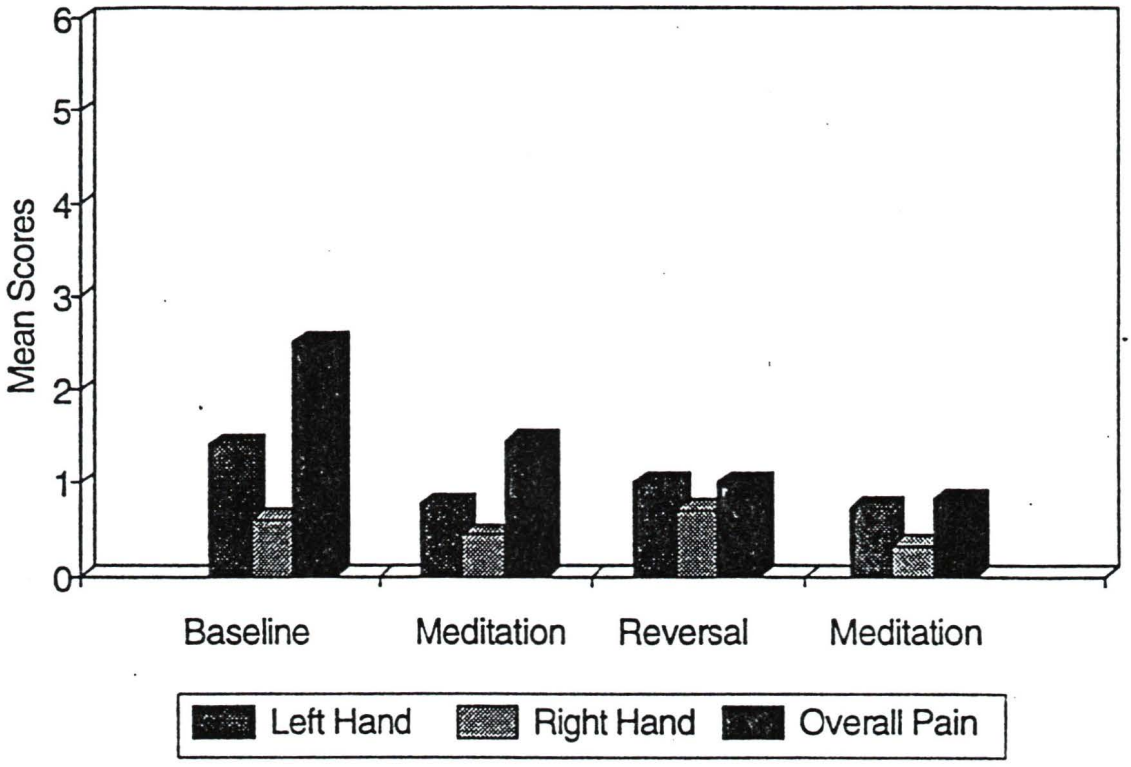


Figure 4. Visual Analogues
Mean Scores per Condition - Subject 1



Subject #2

For Subject #2 (see Figure 5) there is a decrease in pain levels, as measured by the Dolorimeter in the left and right hands in the first phase of meditation. The rest of the data shows a slight trend towards an increase in pain levels across conditions.

The most painful joint, the left shoulder, actually shows the most pain in the beginning of the final meditation phase of the study and then shows a definite decrease at the end of the study.

In the self-report Visual Analogue Scale there is a drop from baseline level in the left hand and overall pain levels (see Figure 6). These two measures begin a steady rise when she was asked to stop meditating and are showing a fairly strong downward trend in the final meditation phase. The left hand measure is pretty consistent across baseline and initial meditation phases, starts a steady rise during the removal phase, and joins with the other two measures in a steady downward trend in the final meditation stage.

In the Mean Scores bar graph (see Figure 7) it is much easier to see that there has been an increase in pain levels in the left and right hands from beginning to end of the study even through there is a definite drop in pain levels from the baseline to first meditation phase. The most painful joint (the left shoulder) shows a very slight drop by the end of the study.

Figure 8 shows the Mean Scores per condition on the Visual Analogue. The left hand and overall pain levels show the tendency expected if meditation was having a positive effect, pain levels down from baseline in first meditation phases, up during reversal and down again during final meditation phases. The right hand however does not show such a pattern, the level increases through the first three phases and then starts to fall slightly in the final meditation phase.

Subject #2 rates the personal value she received from meditating as a 6 on the 10 point scale (see Appendix III). In the questionnaire she says that she thinks she had a slight decrease in pain in all of her joints. She also mentions that she noticed that when she meditated during her most painful periods her focus was redirected away from her pain - she refers to it as being a 'temporary escape from pain'. She states that she feels less anxious and stressed, more relaxed, can think more clearly and has sounder sleeps with fewer interruptions. During the period when she was asked to stop meditating she reported feeling more stress, wound up and a slight increase in pain. She also feels that her sleeps were not as sound and she had greater difficulty thinking when she was writing papers for university

Subject #2 reported a 100% rate of daily meditation on her weekly meditation charts. She also makes the point that she plans to continue to meditate and is interested to see if her pain will decrease more in the long term.

Figure 5. Electronic Dolorimeter Scale
Subject 2

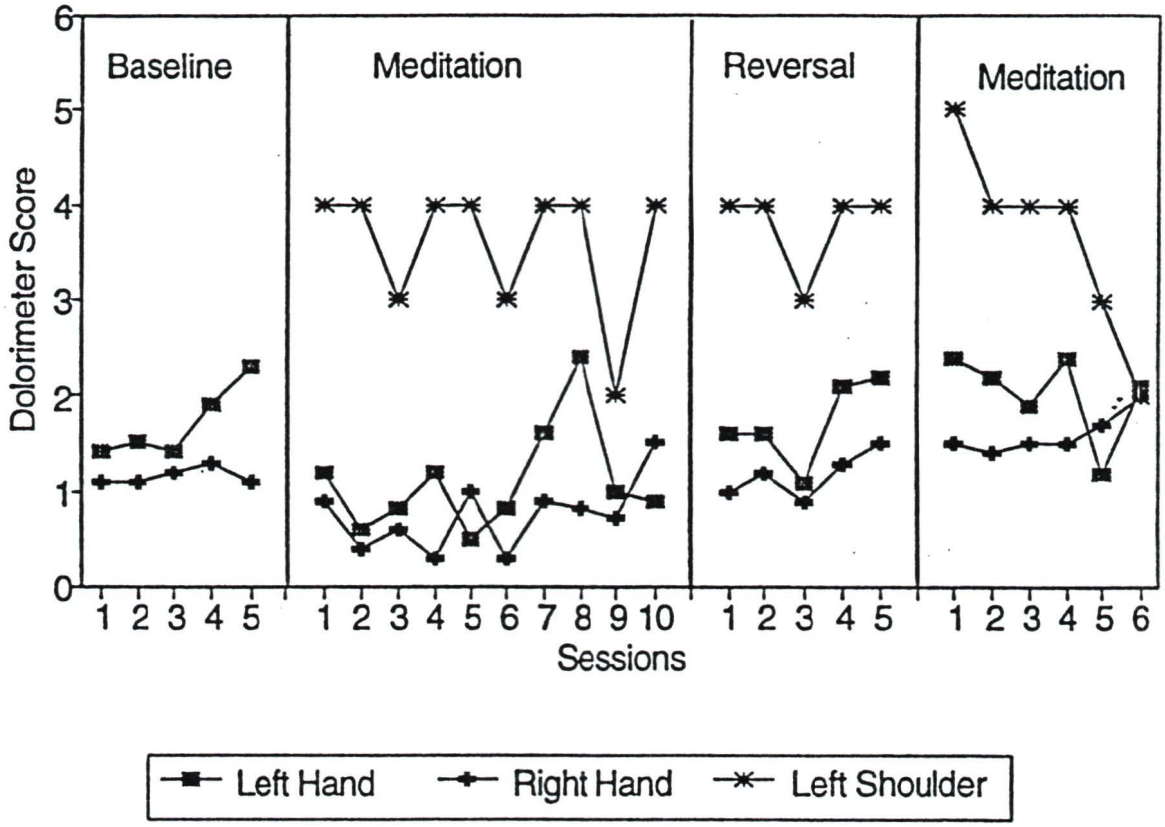


Figure 6. Visual Analogue Scale
Subject 2

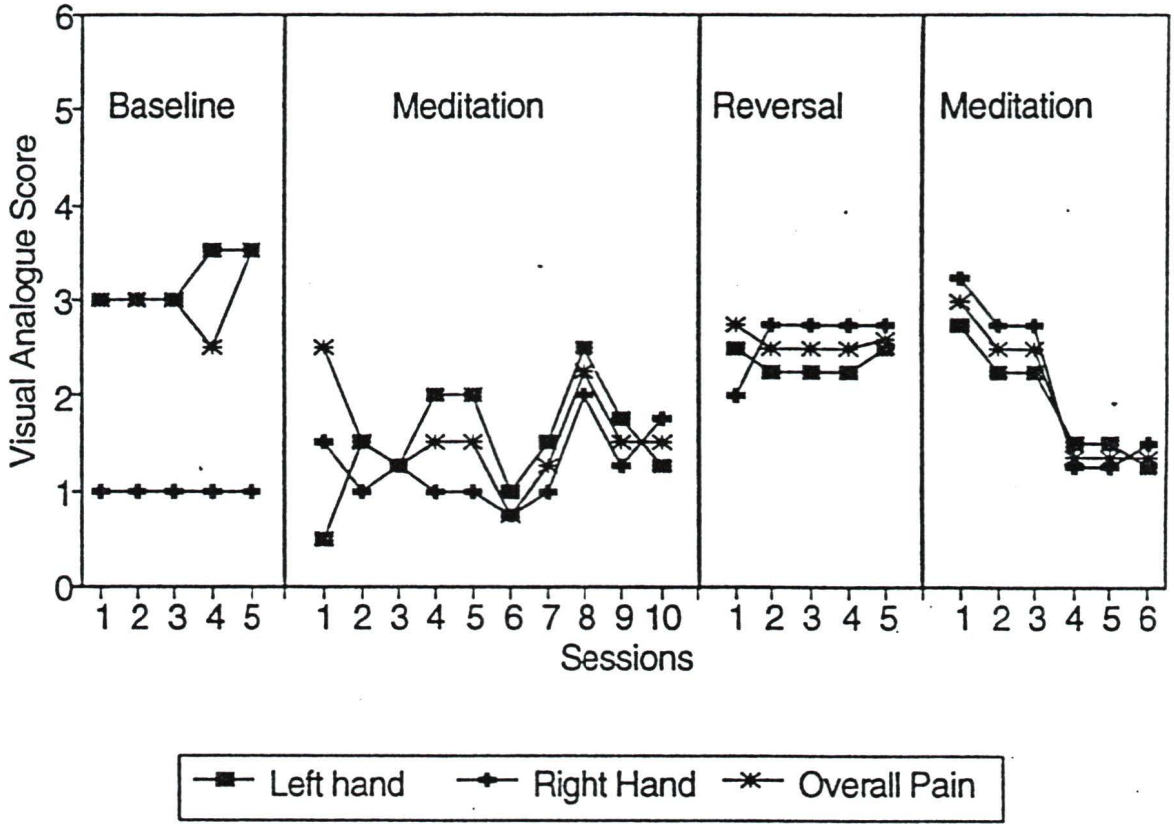


Figure 7. Electronic Dolorimeter
Mean Scores per Condition - Subject 2

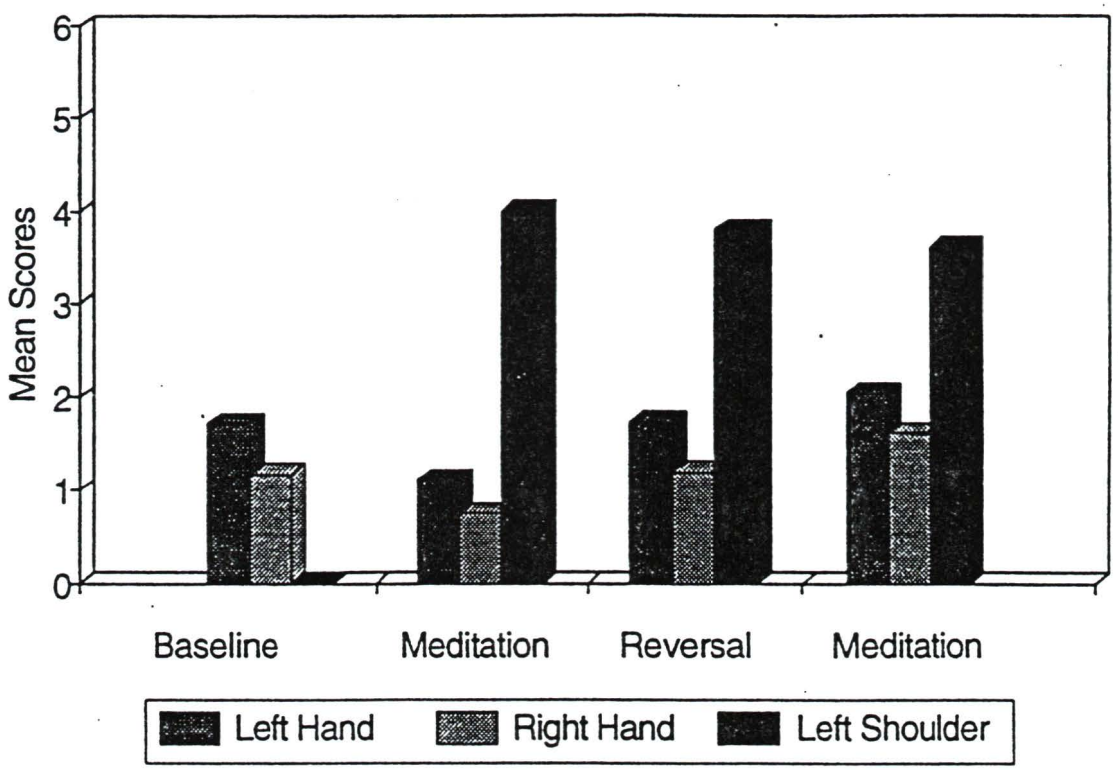
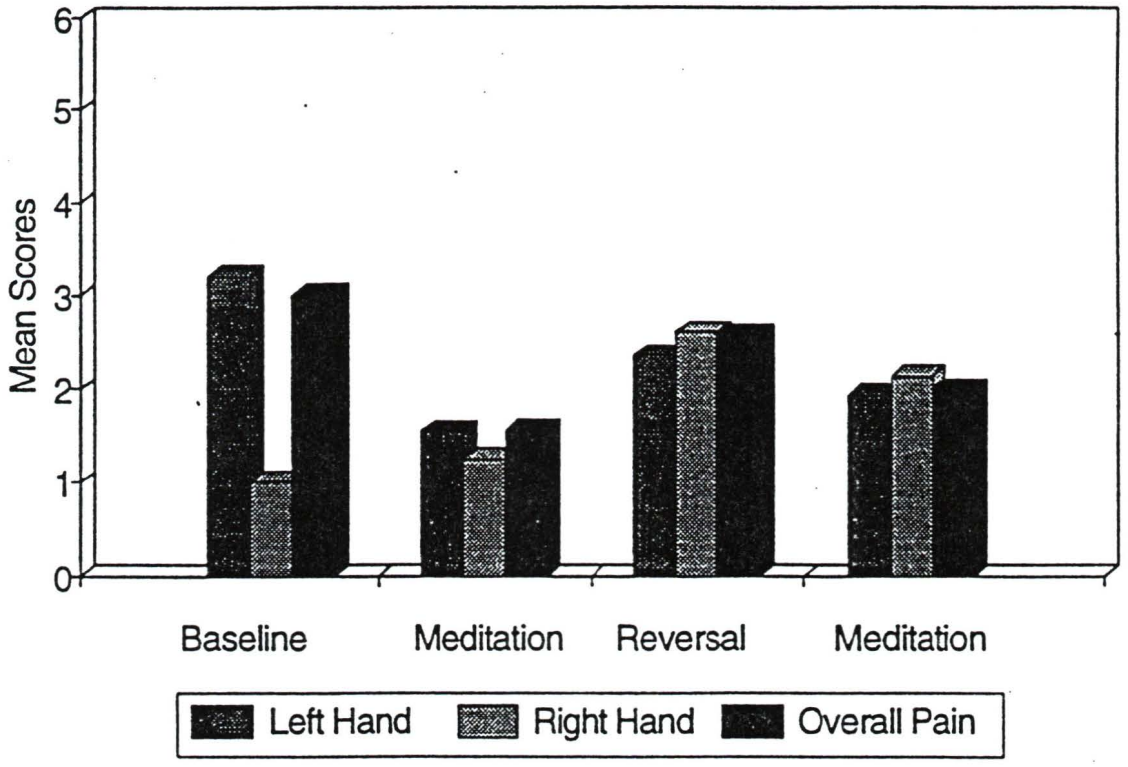


Figure 8. Visual Analogues
Mean Scores per Condition - Subject 2



Subject #3

The Electronic Dolorimeter results for Subject #3 (see Figure 9) showed a downward trend on all three measures during the initial meditation phase, a slight upward trend during the removal of meditation phase, and a leveling off during the final meditation stages. Although the trend is there the differences are only slight.

On the Visual Analogue Scale (See Figure 10) there is no trend apparent. Both left and right hands seem fairly similar throughout the entire study. The overall pain rating tends to be more erratic, but that too seems to be the case across the entire study.

The bar graph of the Mean Scores per condition (see Figure 11) shows that with the left hand the pain levels have gone slightly but steadily down across all conditions in the study. The right hand goes down during the first meditation phase, up during reversal and up again slightly during the final meditation phase. Most painful joint reading goes down slightly during reversal and up during the final meditation phase.

The bar graph of the Mean Scores per Condition on the Visual Analogue Scale (see Figure 12) doesn't show much of a change in any direction with the scores at the end of the study pretty much the same as they were at the beginning with the exception that the right hand score was higher at the end of the study.

On the final Questionnaire (see Appendix III), Subject #3 rates the personal value she received as a 9 on a ten point scale. She states that she can't say for sure that meditation effected her pain level, that she has always had 'good days' and 'bad days' and that did not change during the study. She notes that sometimes she feels like she has been doing nothing but 'mind wandering' the whole time. During the removal of the contingency phase she reports that physically and mentally she felt no difference but emotionally she didn't feel as centered; like something was missing. She says that she sometimes got into a relaxed state that she enjoyed while meditating, had a feeling of 'everything is all right in my life'. She expressed the she feels that meditating gets her going in the morning and she now starts her day earlier.

Subject #3 had a 100% rate of daily meditation based on her weekly meditation chart. She also mentions that she thinks a study of this nature should be done for a much longer time and notes that she will continue to meditate.

Figure 9. Electronic Dolorimeter Scale
Subject 3

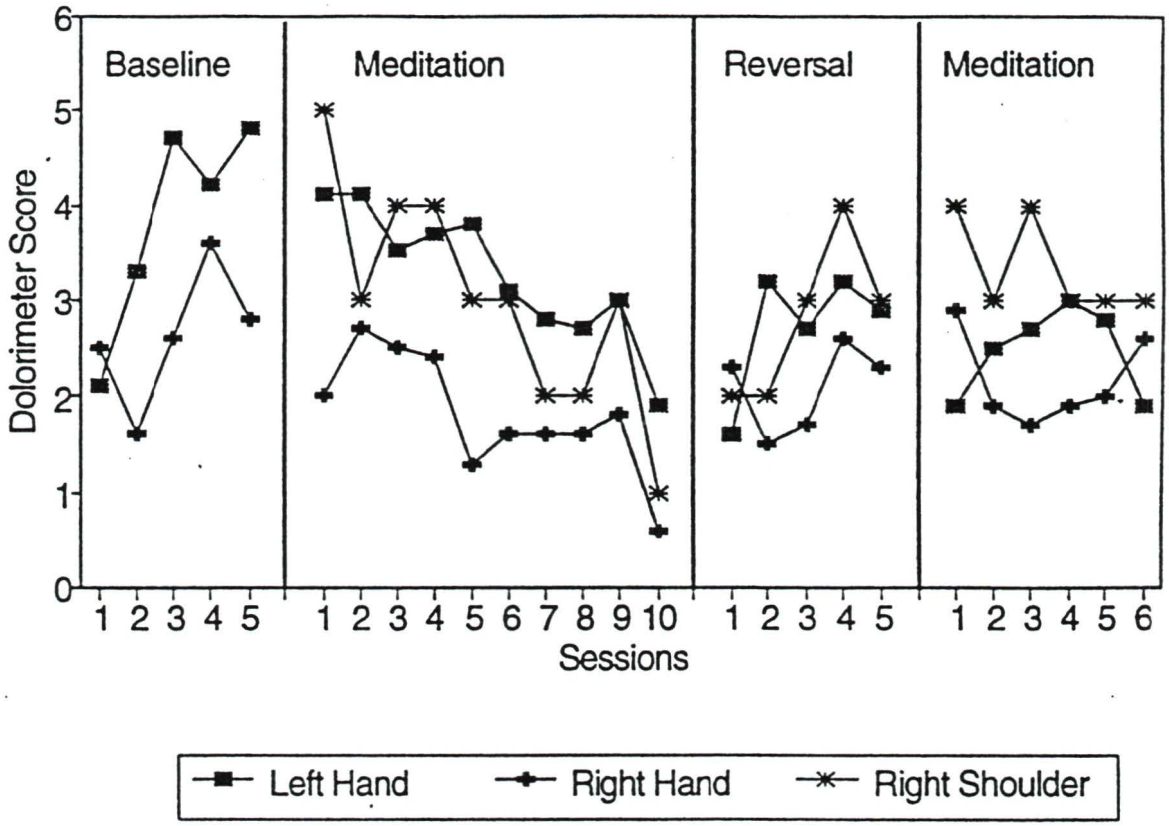


Figure 10. Visual Analogue Scale
Subject 3

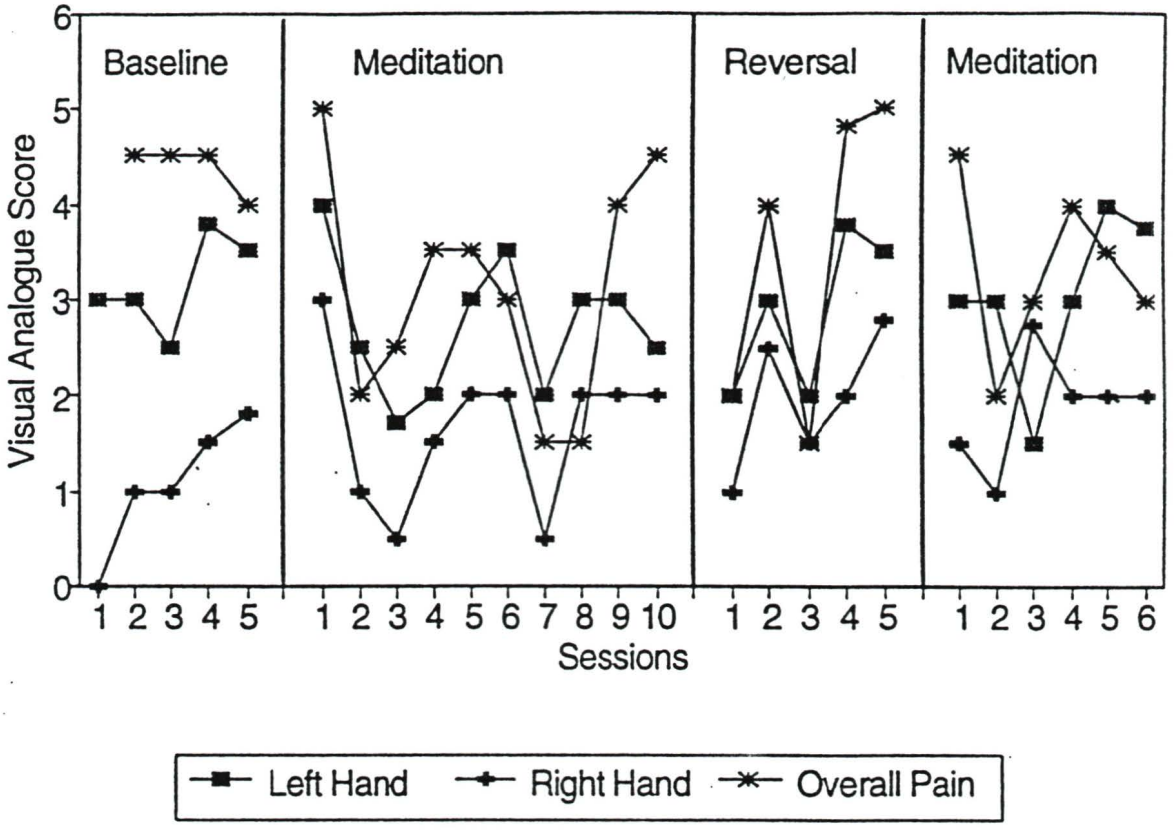


Figure 11. Electronic Dolorimeter
Mean Scores per Condition - Subject 3

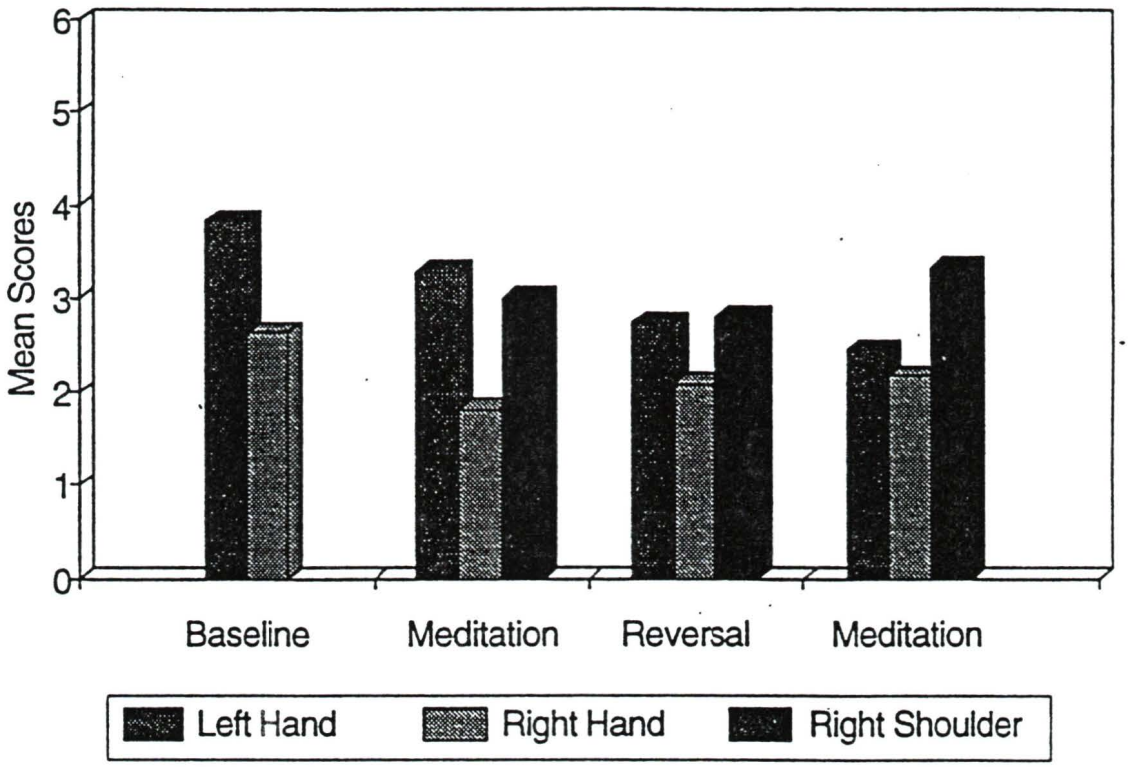
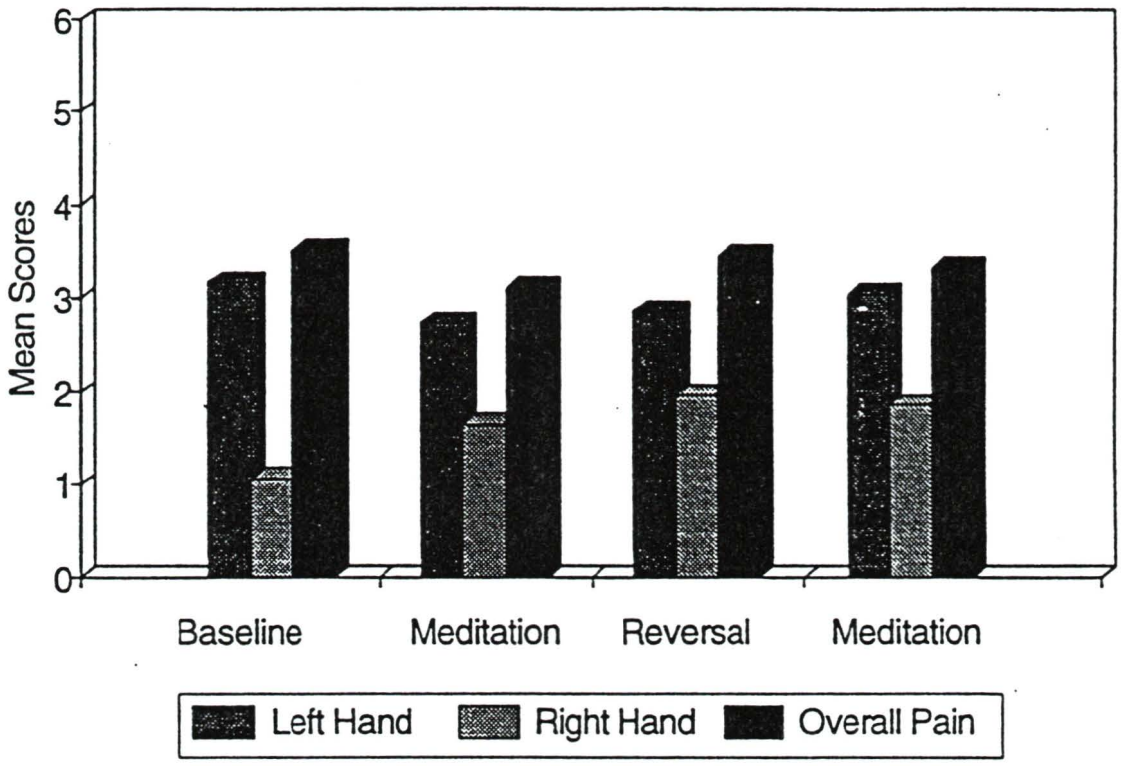


Figure 12. Visual Analogues
Mean Scores per Condition - Subject 3



**Subject #4**

The Electronic Dolorimeter readings (see Figure 13) show a slight decrease from baseline in the first phase of meditation. All three measures begin a slight rise during the removal phase and then begin to drop during the final meditation phase.

The ratings on the Visual Analogue Scale (see Figure 14), show a trend similar to the Dolorimeter. There is an increase in pain level in the beginning of the first meditation stage, followed by a reduction and leveling out. The removal stage shows an increase in pain level in all three measures followed by a steady decrease in the final phase of meditation.

In Figure 15 we can see the Mean Scores from the Electronic Dolorimeter. Although for both left and right hands there is a drop from baseline, the results show not much difference between conditions. This is also true for the left ankle, which remains nearly the same across conditions.

The Mean Scores per condition on the Visual Analogue scale (see Figure 16) shows the overall pain with the pattern of pain lessening with meditation, increasing with reversal and decreasing again with the final meditation phase. The right hand measure increases slightly but steadily until the final phase when it decreases. The left hand measure increases in reversal and falls again in the final phase.

Subject #4, in the final questionnaire, rates the personal value of meditation as being a 9 on a ten point scale (see Appendix III). She felt that meditation has had a positive effect on her pain level, that she started to feel generally better, less stiff. She comments that she 'Forgot how bad I used to feel'. She also reports that she feels generally happier and less affected by the everyday stress at work. During the period when she was asked to stop meditating, she reports that she noticed a big increase in stiffness and her joints became more painful, she felt more stressed and under pressure. She mentions that she had a strong desire to meditate as she was going through a lot emotionally and wanted to feel better, more relaxed.

Subject #4 had a 90% rate of daily meditation as reported on her weekly meditation charts. She says she enjoys meditation 'extremely' and feels that she has found a new 'life skill'. She mentions that she has received comments from friends and family that she seems more relaxed and pleasant. She also reports an intention to continue meditating.

Figure 13. Electronic Dolorimeter Scale
Subject 4

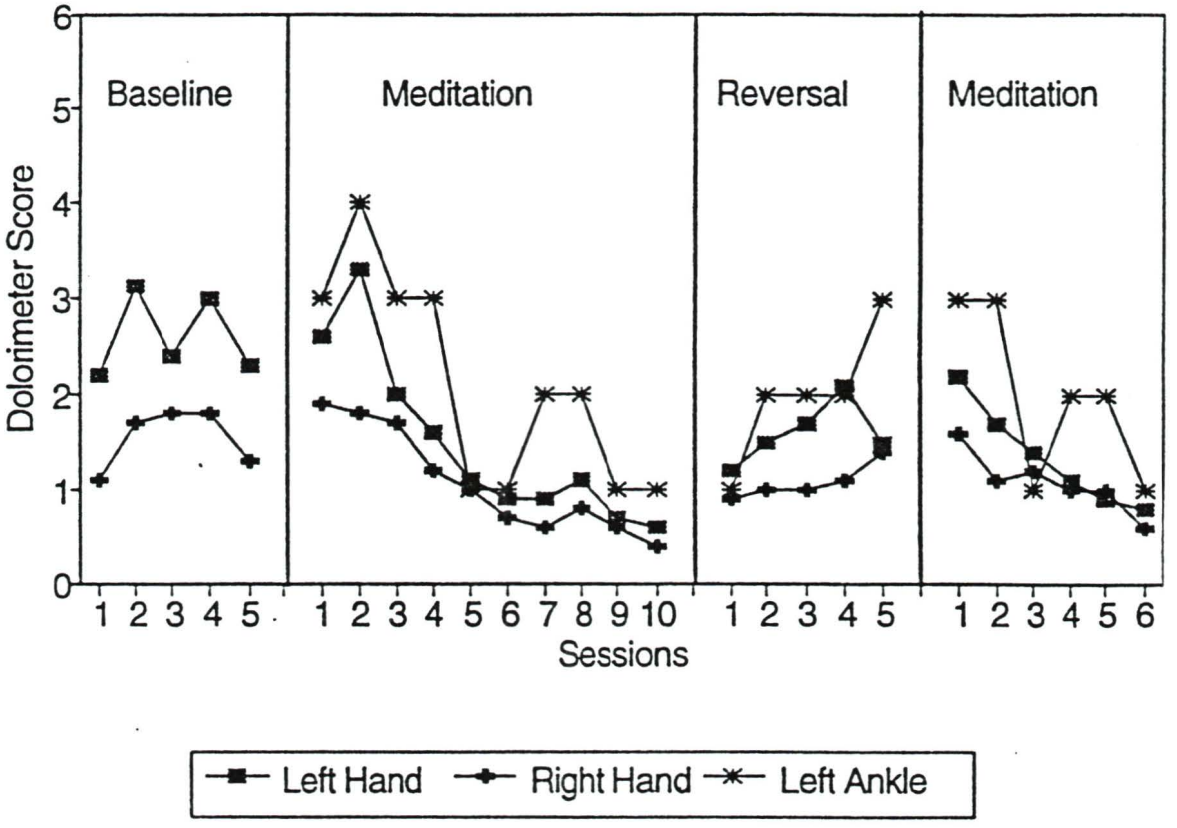


Figure 14. Visual Analogue Scale
Subject 4

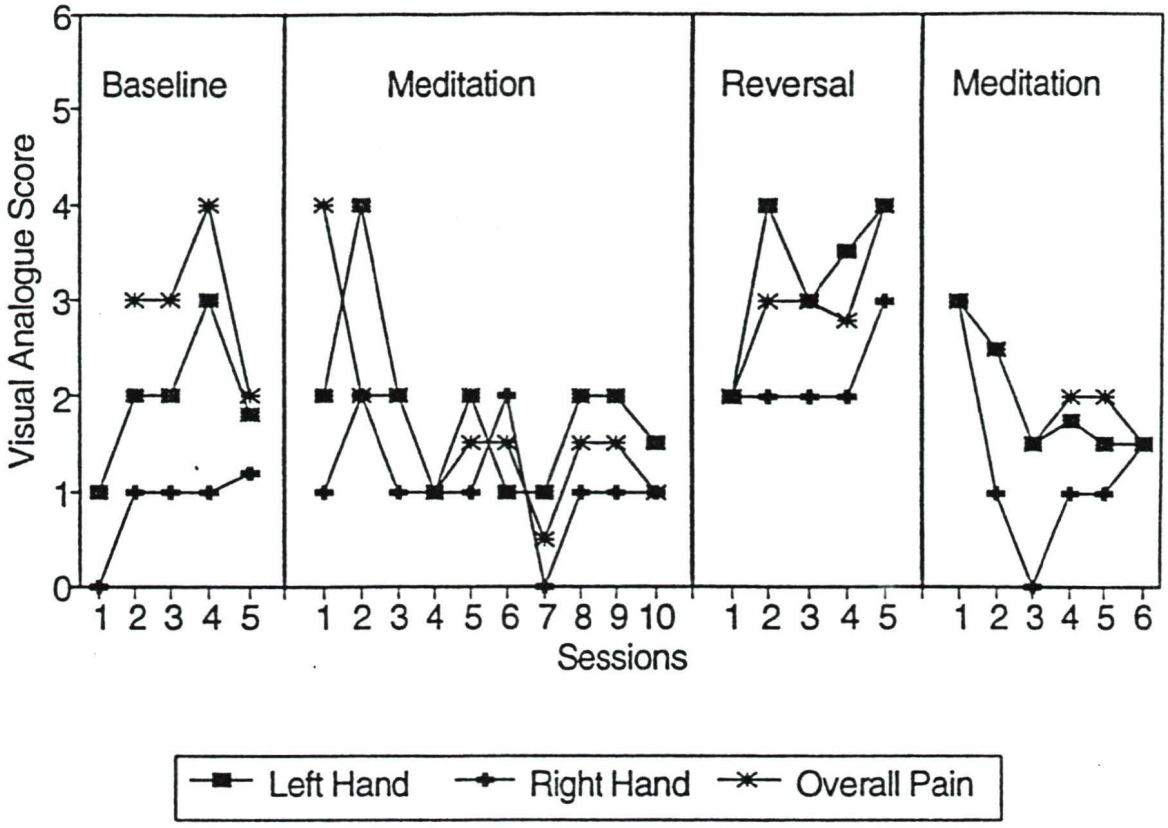


Figure 15. Electronic Dolorimeter
Mean Scores per Condition - Subject 4

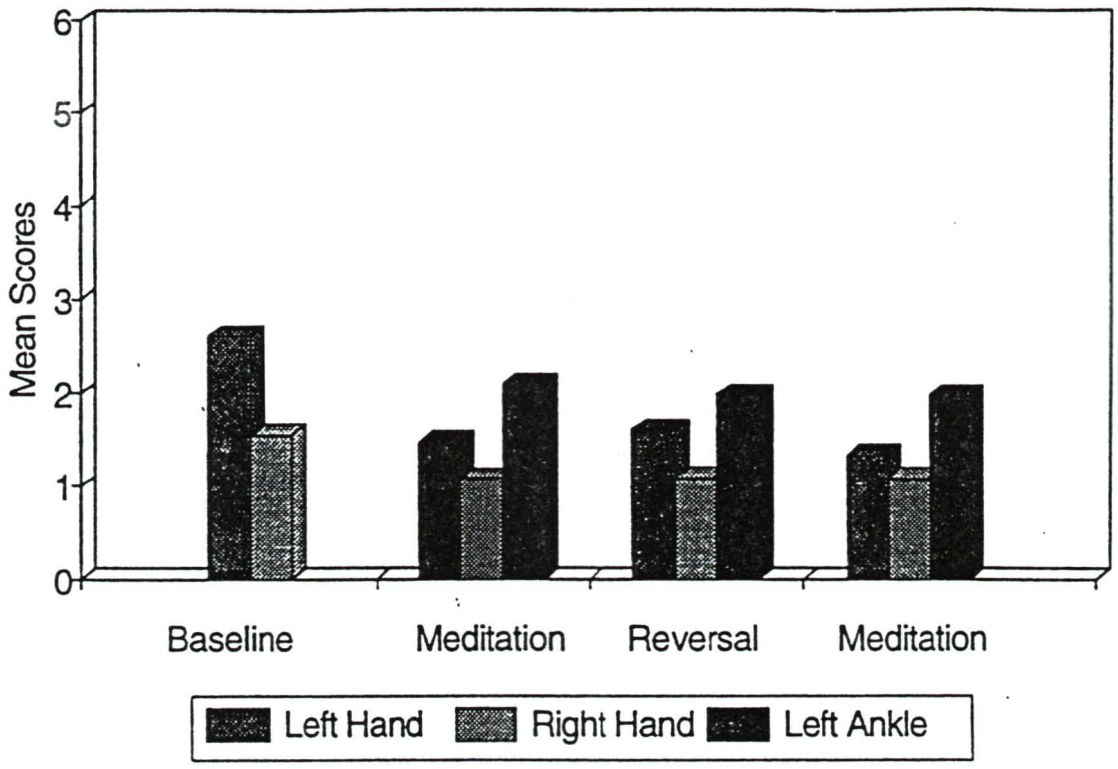
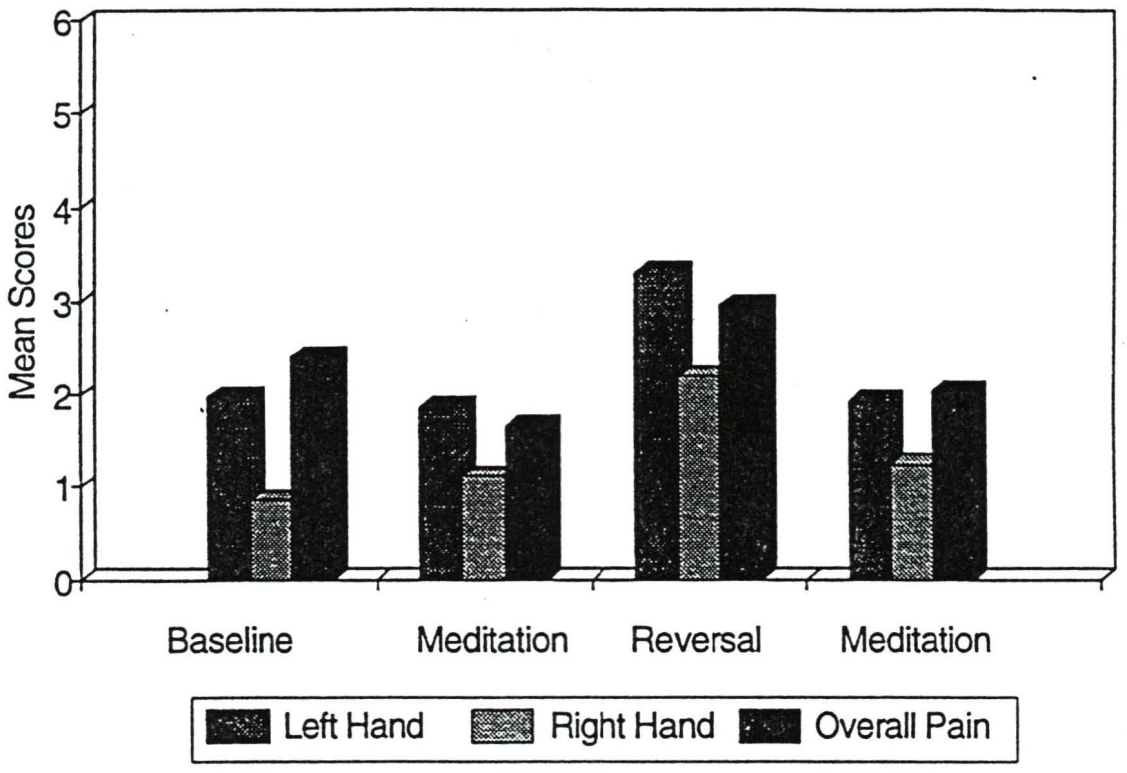


Figure 16. Visual Analogues
Mean Scores per Condition - Subject 4



Subject #5

On the Electronic Dolorimeter measure (see Figure 17), the intervention didn't seem to have much apparent effect on Subject #5 at all. If there is any trend at all the ratings for her left and right hand go up slightly at the end of the study and the rating for her most painful joint (the right knee) seems to go down slightly by the end of the study. However these trends could not be considered significant.

Subject #5, on the Visual Analogue Scale (see Figure 18), doesn't show much of an effect at all of meditation. Her ratings for her left and right hand remain absolutely constant throughout the study with a slight increase at the end of the study during the final meditation phase. Her overall pain level rating shows a drop from baseline then a slight increase during removal and final meditation phases.

The Mean Scores per Condition (see Figure 19) show a slight drop in pain levels for the overall pain rating by the end of the study. The left hand and right hand, however show a small but steady increase in mean pain levels across conditions for the whole study.

The Mean Scores per Condition for the Visual Analogues (see Figure 20) show a very slight increase during the first meditation phase, a drop to zero during reversal and a small increase during the final meditation phase. This would seem to indicate a very

slight opposite trend to what we would expect if meditation was having a positive effect on pain levels. Overall pain levels drop for the initial meditation phase, increase for the reversal phase and stay almost the same although with a very slight increase for the final phase of meditation.

Subject #5 gives a rating of 7 for the personal value that she received from the meditation.(see Appendix III). She says that she thinks it effected her pain level to a certain degree and wonders if it would decrease even more if she did it more often and possibly longer than fifteen minutes twice a day. She states that it took away agitation and loss of patience that for her usually leads to a sore, stiff body. She experienced a 'wonderful clarity and calming', a reduction in anxiety and stress, an ability to 'keep things in my mind' and an 'added kick to my already dogged determination.'

During the two weeks when she was asked to stop meditating she reports feeling quite apprehensive - like the rug was being pulled out from under her. She felt like she was just getting really disciplined about meditating and being good to herself when she was asked to quit. By the second week of not meditating she reports becoming more anxiety ridden and 'not clear again.'

Subject #5 had a 100% rate of daily meditation throughout the study. She also reports an intention to continue meditating.

Figure 17. Electronic Dolorimeter Scale
Subject 5

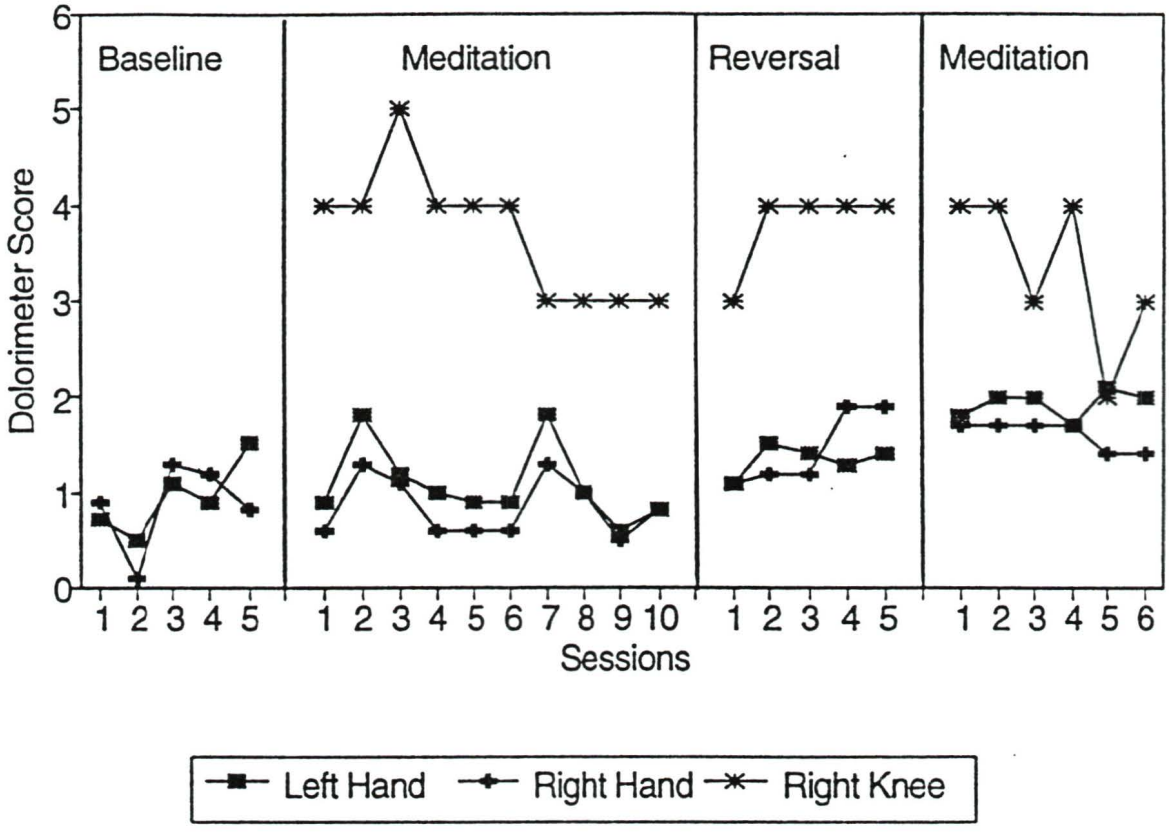


Figure 18. Visual Analogue Scale
Subject 5

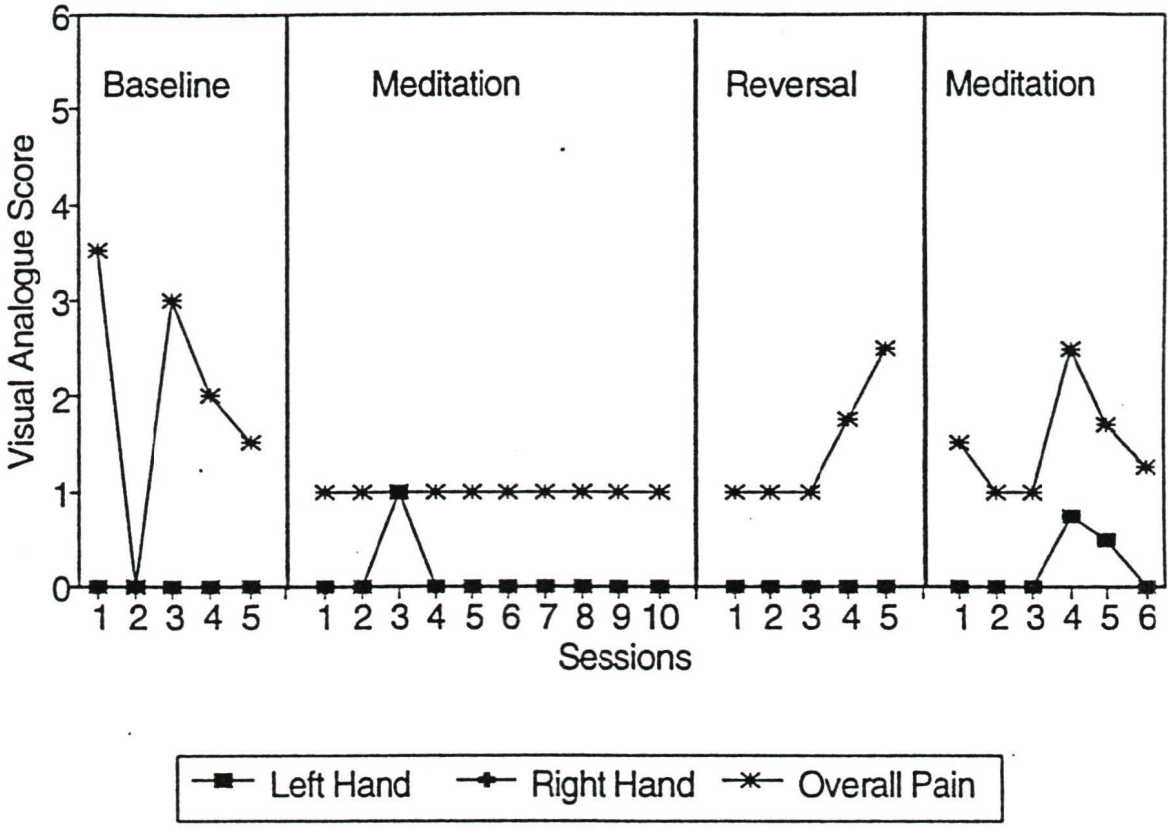


Figure 19. Electronic Dolorimeter
Mean Scores per Condition - Subject 5

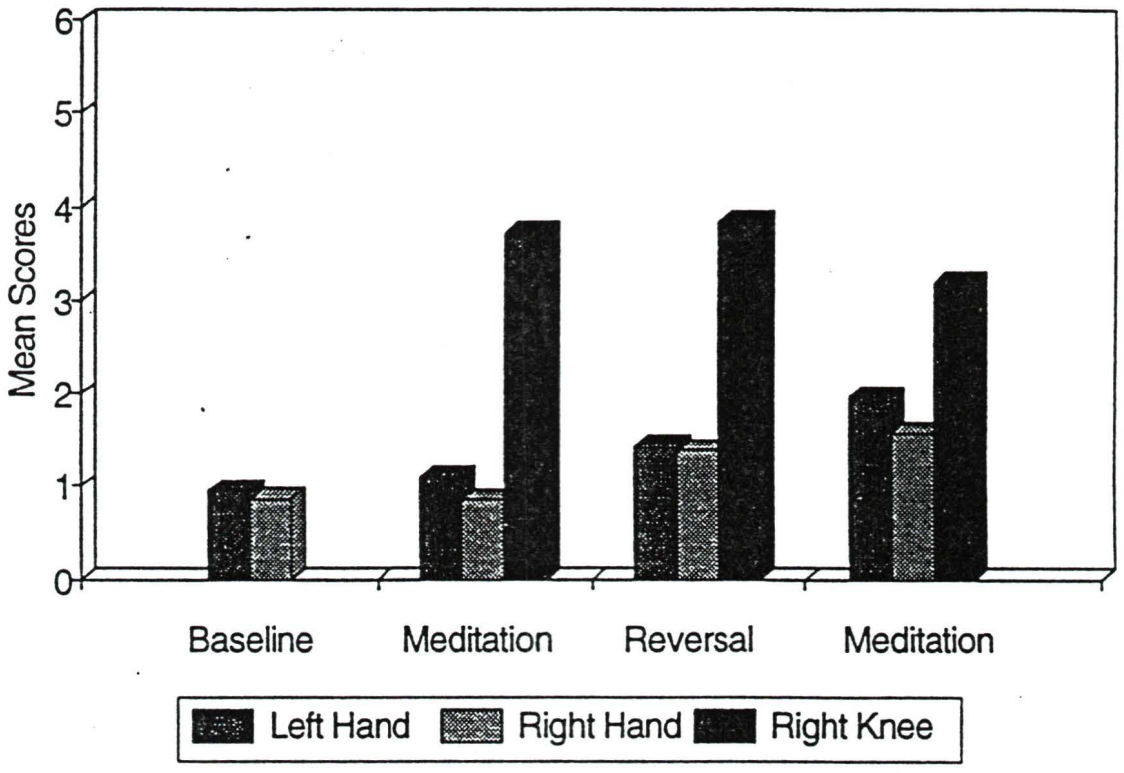
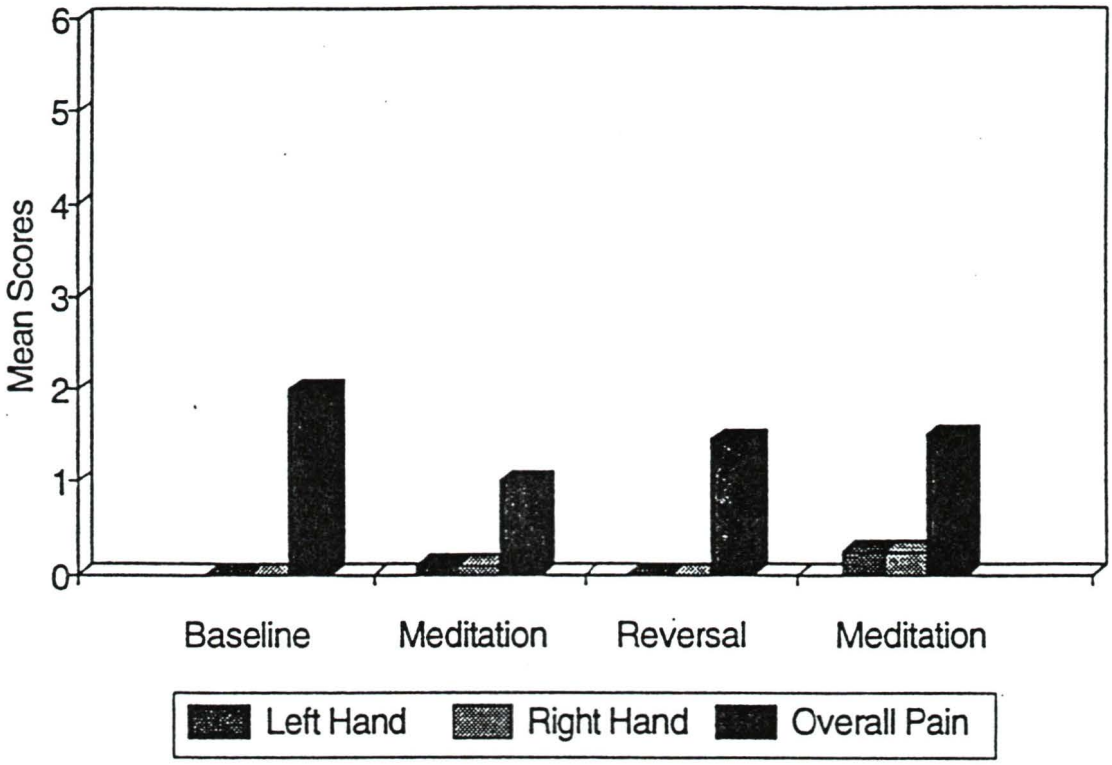


Figure 20. Visual Analogues
Mean Scores per Condition - Subject 5



## General Comments

Overall the results on the Electronic Dolorimeter showed little change. The same is true of the Visual Analogue Scale - no strong and clear indicators that meditation had had the desired impact and reduced the pain significantly in the subjects.

They all rated the experience as a positive one however; three rated the value as a nine out of ten in terms of personal value, one rated it as a seven and one rated it as a six. They all mentioned feeling more relaxed as a result of the meditation, with an increased sense of well being. All the subjects said that they had experienced no negative impact from the meditation and all said either to the researcher or in the questionnaire that they intend to continue to meditate on their own and that they regret only that the study couldn't have been longer.

The subjects were extremely highly motivated and reliable. In the entire nine weeks of the study only one subject missed one day of testing and that was because she was working from very early in the morning until late that night. Three of the subjects meditated 100% of the time required, one 90% and one 74%. The researcher considers the subjects personal commitment to the research to have been exemplary. They all expressed a high level of interest in exploring alternative methods of pain reduction and judging by their level of participation in a study that required a major commitment on their part for nine weeks it would seem

that they are all very serious in that endeavor.

# CHAPTER V

## Discussion

### Summary of the Study

This research study consisted of a single subject, removal of contingency design. Five women with progressive Rheumatoid Arthritis were taught a simple mantra meditation and yogic breathing technique. The subjects were measured three times a week for a period of nine weeks using both the Electronic Dolorimeter and a Visual Analogue Scale. A week of baseline was followed by four weeks of meditation; the subjects were then asked to quit meditating for two weeks following which they returned to meditation for the final two weeks of the study.

In several of the subjects there was a trend towards a lessening of pain with the meditation: Subject #1 showed a reduction in both her most painful joint on the Dolorimeter scale and a reduction in overall pain on the Visual Analogue Scale. Subject #2 showed a reduction in her most painful joint rating on the Dolorimeter and a strong downward trend in the pain rating on the Visual Scale for her left hand and overall pain rating. Subject #3 showed a steady pain reduction in the left hand on the Dolorimeter scale. Subject #4 showed a downward trend on the Dolorimeter scale in both the most painful joint and the left hand.

The final questionnaire showed an overall very positive response to the experience of meditation and all subjects reported

an intention to continue the practise. The subjects all reported finding meditation an enjoyable, relaxing, stress reducing experience. They all reported an increase in their overall sense of personal well-being. This increase in self-perceived well being seems to have had a strong and positive impact on the subjects.

## Limitations of the Study

There was some decrease in pain as measured by the Electronic Dolorimeter and Visual Analogue Scales. The researcher is left with the impression that, had the study been longer, there may have been a larger decrease in pain on both measurements.

Schopen & Freeman (1992) feel that "The scientific method of research is viewed by some to be inadequate for the task of considering questions regarding the therapeutic benefits of meditation for altered states of consciousness. Studying consciousness is very difficult, and measurement tools are inadequate" (p. 129). The tools of measurement in this case were not inadequate to measure pain levels, however they appear to be insufficient to measure the full impact of the experience on the subjects.

The subjects rated meditation as a very positive experience. We don't have in this study a precise way of measuring exactly what it was that the subjects found so positive and why they all

expressed the intention to continue to meditate. We do however have their subjective reports in the final questionnaire and the personal comments recorded by the researcher.

Perhaps the biggest impediment to this study was lack of sufficient time. Part of the course of the disease is that the pain changes- good days and bad days are typical. An aggravating factor is also the weather. According to Harris (1989), "Pain in patients with RA increased significantly as temperature and vapor pressure increased....exacerbations of the disease are more common in winter" (p. 949).

This study began at the beginning of October when the weather was fairly warm and dry. According to the literature the subjects pain would be expected to increase as the weather got colder and wetter. It could perhaps be considered significant that the subjects pain didn't get worse when that is what would have been reasonably expected considering the cool, wet weather.

## Recommendations for Future Research

We have in RA a chronic and disabling disease that is estimated by McDuffie (1985) to be effecting from 0.5 to 1 percent of the population between the ages of 20 and 80. According to the Arthritis Foundation (1982) RA "prompts 6.5 million Americans to seek medical attention for relief of RA symptoms each year" (cited in Crosby 1988, p. 452).

Billions of dollars have been and are continuing to be spent on the care of RA sufferers and research into pharmacological treatments. As mentioned earlier in this study the result of all this expense and effort is that we still don't know what causes RA, except that it seems to have a probable genetic factor (note that three of the subjects have a family history of RA) and emotional stress seems to proceed the manifestation of the disease.

We also know of no cure and have very little to offer to help deal with the pain of RA; "highly effective strategies for managing arthritis pain do not exist" (Parker, 1989, p. 593). Many of the drugs used in the treatment of the disease are very questionably effective especially when one looks at the many possible side effects of those drugs; "Drug treatment continues to be less than satisfactory" (McDuffie, 1985, p. 2). It is time that alternative methods of dealing with physical and psychological pain were given research attention and funding.

When the researcher was advertising for participants for the study approximately 50 people phoned in response to the ad. The majority of those calls were from women who not only wanted to be participants but expressed a real desperation to find alternative means of dealing with their pain. It was obvious that these women were not being offered the kind of help they were aware that they needed.

A common theme that emerged was how many of them had either dramatically reduced their drug intake or quit taking their

prescriptions altogether because of the side effects. They also expressed feeling afraid and unsupported psychologically to deal with the enormous stress that having a chronic, painful disease had on their lives.

The researcher feels that it is vitally important that the practitioners of various disciplines of healing such as medicine and psychology (both the Western and Eastern varieties) be willing to communicate with each other and finds ways of working together for the good of patients. RA is an excellent example of an area where a multidisciplinary team approach to health could be extremely beneficial.

The researcher can't help but feel that if an adequate portion of health research funding went into research in the area of PNI and nonpharmacological treatment we could make significant inroads into healing pain and suffering.

It would be interesting to see the basic format of this study copied but spread out over a year or even longer to see whether meditation would reduce the physical pain of RA. It would be fascinating to bring together some of the finest Eastern meditation teachers and give them the time and resources to teach a full range of meditation techniques to people suffering from progressive RA.

The beauty of such an approach is that, unlike the use of drugs, there would appear to be no negative side effects and there is no need for the funding to be spent on expensive laboratory

equipment. We have at our disposal an intervention like meditation that has been used 'in the field' for centuries as a method of expanding consciousness and stimulating human healing. We also have a body of Western practitioners and teachers, many of whom have used various forms of Eastern meditation for many years and also have solid academic backgrounds.

It would appear that all that is missing is the will to direct an adequate portion of our health research dollar to this type of non-invasive research into alternative methods of managing stress and helping people either alleviate or live with the chronic pain of RA.

For the researcher the most fascinating new insight that came out of this research is the issue of the difference between pain and suffering. It is vital to the psychological health of any individual that they be able to achieve and maintain a sense of personal well being. The ability to feel good about life is a challenge to everyone regardless of their circumstances. Could meditation perhaps be able to significantly reduce the suffering and increase the overall sense of well being in RA patients even if it was proven not to reduce the actual physical pain?

## General Discussion

Recently John Bradshaw (1990), proponent of a new approach to healing the hidden pain of the 'child within' made the following assertion in reference to traditional psychology: "It is possible that all the birds are flying in the wrong direction." The researcher has concluded this study convinced that something similar could be said of the modern medical approach to RA treatment.

I think it is possible that many of the 'birds' are heading in the wrong direction when it comes to how our medical community is offering help to people living with the chronic pain of RA. For all the billions of dollars, years of research and brilliant people that have studied RA, the medical bag of the physician of the 90's remains woefully inadequate to help alleviate the very real suffering experience by patients with RA. This situation must be extremely stressful not only for the patients but also for the physicians who are sincerely doing their best to help the individual who is suffering deeply from this chronic disease.

The researcher, unfortunately, completes this particular research study without the kind of 'hard' results that would support the use of meditation as an adjunct for the treatment of RA. The experience of studying RA for a year and working with these women for nine weeks has, however, left the researcher as a firm advocate for alternative healing strategies to be funded

properly and the holistic, psychological and nonpharmacological care of the patient to be viewed as of equal importance to traditional medicine in the attempt to end or at least lessen the very real and profound pain and suffering experienced by a substantial proportion of our population.

It doesn't seem too far off the mark to ponder the possible results of a whole interdisciplinary team of professionals who truly accepted their responsibility as healers and began to treat the whole person suffering from a chronic and painful disease. Perhaps we need to quit focusing exclusively on our Western attempts to 'cure' the disease and begin to investigate the essentially Eastern concept of 'healing' the whole person.

I offer as support for the positive impact of learning to meditate some comments the subjects made during the study.

"Definitely feeling more relaxed and peaceful - something really significant for me and my family - not just physical rest. I've always had difficulty taking time for myself, to slow down, I'm beginning to learn it's alright just to be. I'm still getting everything done, I just don't feel as ragged. It's a really nice experience - to just get away from myself for awhile."

"I feel like it's part of my life - it feels good - it feels right to do it. It gets better and better. Physically I get really relaxed, slowed down - I get so relaxed."

"I have a recognizable sense of well-being in everything. I'm not as up and down as I was previously - it's tremendously

enjoyable. Physically I'm feeling so good for so long. I'm getting comments from others that I seem happier."

"It helps me relax quite a bit, it slows me down. I don't feel as stiff in the mornings - I don't feel as much pain - I sleep better. I feel a lot more peaceful."

"It's really grounding, I don't feel as jittery. I look forward to it. It's sexually rejuvenating. I'm so tired at the end of the day I don't want my boyfriend to touch me, I just want him to leave me alone. After I meditate I end up ripping his clothes off - it's great."

While obviously all the above comments must be taken in light of the fact that during the study a strong bond was formed between the subjects and the researcher and, it is possible that they were trying to be supportive to the researcher, they nonetheless seem to point to their experience of meditation as being positive, empowering and relaxing.

Aron & Aron (1986) maintain that "What we need ideally is a more efficient means of resting - one that prepares the brain for activity, rests the body deeply, doesn't require much time, is pleasant enough so we'll all do it, and above all, shows cumulative effects, so we know the effects of past stresses are going, not just the current ones" (p. 27). Meditation, in the experience of the researcher as a practitioner, teacher and researcher very much fills the bill.

Johnson and Repp (1984), point out that "Nonpharmacological techniques involve the total person in developing self-help coping strategies"(p. 590). Meditation offers at the very least a proven-physiological and psychological stress-reduction technique which has no negative side-effects, gives the patient total responsibility for its use and appears to increase a patient's self-efficacy and personal control over at least part of their own healing.

When speaking of holistic healing, the healing of the 'whole' human being, we inevitably find ourselves back at the basic issue of individual empowerment, a core issue basic to genuine, deep human healing. Western medicine must awake to the realization that no matter how brilliant the inroads into drug-based healing, it can never logically be sufficient in an atmosphere where the head, heart and spirit of an individual are broken or ignored.

It seems that we must be willing to recognize that part of the problem is that we, in fact, know very little about the main goal of both medicine and psychology - human health. Pelletier & Herzing (1987), make the point that "We know so much more about disease than about health that this area holds great potential for major discoveries....Evidence emerging from numerous studies indicates that subtle relationships between mind and body may swing the balance between health and illness, life and death."(p.37).

The researcher, having had the privilege and experience of working with these women for nine weeks, is convinced that the drawback of this study was the limitation of time. The only way to really judge whether or not meditation could have a significant effect on physical pain would be to look at it over a period of at least one year.

The cooperation of various disciplines, the combining of Eastern and Western methodologies, and the inclusion of both the physical and psychological aspects of pain and suffering appears to point to the possibility, at least, of a more empowering, humane and effective method of helping the individual suffering from RA.

We are at a unique juncture in medical, psychological and spiritual history. Through the joining of Eastern and Western methodologies; the breakdown of the traditional Cartesian split of mind and body as in PNI; and quantum physics giving 'scientific' credibility to a direction in human healing that the mystics have been pointing to for centuries, there exists a potential for human change unlike there has ever existed.

In the words of Carl Jung "Psychoanalysis itself and the lines of thought to which it gives rise - surely a distinctly Western development - are only a beginner's attempt compared to what is an immemorial art in the East" (Jung, cited in Peterson, 1986, p.204). Other knowledgeable and articulate thinkers are making similar statements; "A new synthesis is in process within modern psychology. This synthesis combines the concerns of the esoteric

traditions with the research methods and technology of modern science" (Ornstein, cited in Peterson, 1986, p. 206).

I think that Pelletier & Hertzing (1987) underscore the importance of the possibilities of this kind of approach. "Speculations concerning the ultimate role of beliefs, positive emotions, and spiritual values in organizing and transcending biological determinism might seem like philosophical speculation if the answers to these questions were not so critical to our survival as a species balanced between health and illness, life and death." (p. 49).

It is vitally important that professionals in the various fields of human healing be prepared to investigate the possibility that meditation, the primary psychological and spiritual intervention of the East for centuries, may have more to offer us than we are currently able to appreciate.

It is the hope of the researcher that medical, psychological and spiritual practitioners find ways to work together. By combining their unique pieces of the healing puzzle, perhaps it is possible to develop a gentler, more efficient and empowering method of diminishing the very real pain and suffering of a great number of people who live with chronic pain.

The researcher has a definite bias that this kind of integration of knowledge could result in a greatly refined and much more effectual approach to healing the suffering and pain of chronic, progressive RA.

# REFERENCES

Alexander, C., Chandler, H., Langer, E., Newman, R., Davis, J., (1989). Transcendental meditation, mindfulness, and longevity: An experimental study with the elderly. Journal of Personality and Social Psychology, 57 (6) 950-961.

Anderson, V., Morosani, R. (Eds.), (1987). From darkness to light. New York, Coleman.

Aron, E. & A. (1986). The maharishi effect: a revolution through meditation.Walpole, New Hampshire, Stillpoint.

Atkins, C.J., Zielinski, A., Klinkhoff, A., Chalmbers, A., Wade, J., Williams, D., Schulzer,M., & Della Cioppa, G. (in press). An electronic method for measuring joint tenderness in rheumatoid arthritis. Arthritis and Rheumatism, 35.

Barber, J. (1988). Worried sick: Scientists discover how stress and emotion affect the course of disease. Equinox, Sept./Oct. 92-108.

Boerstler, R.W. & Kornfeld, H.S. (1987) Meditation as a clinical intervention.Psychosocial Nursing and Mental Health Services, 25 (6), 29-32.

Bradley, A. B., (1989). Psychosocial factors and disease outcomes in rheumatoid arthritis: Old problems, new solutions, and a future agenda. Arthritis and Rheumatism, 32, 1611-1614.

Bradshaw, J. E. (Producer). (1990). Bradshaw on homecoming [Film]. San Francisisco, CA: KQED.

Creed, F., (1990). Psychological disorders in rheumatoid arthritis: A growing consensus? Annals of the Rheumatic Diseases, 49, 808-812.

Crosby, L.J., (1988).Stress factors, emotional stress and rheumatoid disease activity. Journal of Advanced Nursing. 13, 452-461.

Eppley, K., Abrams, A., Shear, J. (1989). Differential effects of relaxation techniques on trait anxiety: a meta-analysis. Journal of Clinical Psychology. XLV (6), 957-973.

Flatt, A.E., (1983). Care of the arthritic hand. St. Louis, C.V. Mosby.

Gelderloos,P., Hermans,H.J., Ahlscrom,H.H. & Jacoby, R. (1990). Transcendence and psychological health studies with long-term participants of the transcendental meditation and tm-sidhi program. The Journal of Psychology, 24 (2), 177-197.

Goldman, N.S., (1985). The placebo and the therapeutic uses of faith. Journal of Religion and Health, 24, (2), 103-116.

Guralnik, D.B. (Ed.). (1979). Webster's new world dictionary of the American language. New York: Simon and Schuster.

Hall, S., (1989). A molecular code links emotions, mind and health. Smithsonian, 20,(3), 62-71.

Harris, E. D., Jr., (1989). Pathogenesis of rheumatoid arthritis. In W. B. Saunders (Ed.), Textbook of Rheumatology, (pp.905-942). Philadelphia, PA: W.B. Saunders Company.

Harris, E. D., Jr., (1989). The clinical features of rheumatoid arthritis. In W.B.Saunders (Ed.), Textbook of Rheumatology. (pp. 943-970).

Johnson,J., & Repp, E. C., (1984). Nonpharmacologic pain management in arthritis. Nursing Clinics of North America, 19, 583-591.

Lovell, D.J., & Walco G. A., (1989). Pain associated with juvenile rheumatoid arthritis. Pediatric Clinics of North America, 36, 1015-1027.

Luck, N.A., (1989). Transcending stress. Nursing Times, 85, (15), 40-41.

McDuffie, F. C., (1985). Morbidity impact of rheumatoid arthritis on society [suppl 1A]. The American Journal of Medicine, 78, 1-5.

McFarlane, A. C., & Brooks, P. M., (1988). An analysis of the relationship between psychological morbidity and disease activity in rheumatoid arthritis. The Journal of Rheumatology, 15, 926-930.

Oberai, B., Kirwan, J. R., (1988). Psychological factors in patients with chronic rheumatoid arthritis. Annals of the Rheumatoid Diseases, 47, 969-970.

Parker, J. C., Buckelew, S. P., Smarr, K. L., Buescher, K. L., Beck, N. C., Frank, R. G., Anderson, S. K., & Walker, S. E. (1990). Psychological screening in rheumatoid arthritis. The Journal of Rheumatology, 17, 1016-1021.

Parker, J. C., Frank, R. G., Beck, N. C., Smarr, K. L., Buesher, K. L., Phillips, L. R., Smith, E. I., Anderson, S. K., & Walker, S. E. Walker (1988). Pain anagement in rheumatoid arthritis patients: A cognitive-behavioral approach. Arthritis and Rheumatism, 31, 593-600.

Parker, J. C., Smarr, K. L., Buescher, K. L., Phillips, L. R., Frank, R. G., Beck, N. C., Anderson, S. K., & Walker, S. E., (1989). Pain control and rational thinking: Implications for rheumatoid arthritis. Arthritis and Rheumatism, 32, 984-990.

Pelletier, K.R., & Herzing D.L., (1987). Psychoneuroimmunology: Toward a mindbody model. Advances, Institute for the Advancement of Health, 5 (1), 27-57.

Peterson, R. (1986). Everyone is right: A new look at comparative religion and it's relation to science. Marina del Rey, CA: DeVorss & Co.

Schopen, A., Freeman, B., (1992). Meditation: The forgotten western tradition. Counselling and Values, 36, (2), 123-134.

Sethi, A.S., (1982). Stress coping. Canadian Journal of Public Health, 73,(4), 267-271.

Smith, M. S., & Womack, W. M., (1987). Stress management techniques in childhood and adolescence: Relaxation training, meditation, hypnosis, and biofeedback: appropriate clinical applications. Clinical Pediatrics, 26, 581-585.

Strauss, G. D., Sinden Spiegel, J., Daniels, M., Spiegel, T., Landsverk, J., Roy-Byrne, P., Edelstein, C., Ehlhardt, J., Falke, R., Hindin, L., & Zackler, L. (1986). Group therapies for rheumatoid arthritis: A controlled study of two approaches. Arthritis and Rheumatism, 29, 1203-1209.

Temple, S. (1971). How to meditate. Chicago, IL: Radial Press.

Tucker, M., & Kirwan, J .R., (1991). Does patient education in rheumatoid arthritis have therapeutic potential? Annals of the Rheumatic Diseases, 50, 422-427.

Van Deusen, J., & Harlowe, D., (1987). The efficacy of the rom dance program for adults with rheumatoid arthritis. The American Journal of Occupational Therapy, 41, 90-95.

Varni, J. W., (1981). Behavioral medicine in hemophilia arthritic pain management: Two case studies. Archives of Physical Medicine and Rehabilitation, 62, 183-187.

Walsh, R. N. (1990). The spirit of shamanism. Los Angeles: Jeremy P. Tarcher

Walsh, R., 1989. Asian psychotherapies. In R.J. Corsini, & D. Wedding,(Ed.), Current psychotherapies (pp.547-558). Itasca, Illinois: F.E. Peacock.

Weber, R. (1986). Dialogues with scientists and sages: The search for unity. London, England: Arkana.

# APPENDIX I

Dear

In the second week of September 1992 I will begin conducting a study on the effects of meditation on Rheumatoid Arthritic Pain for my Masters Thesis in the department of Psychological Foundations in Education. For this study I will need five women, preferably between the ages of 30 and 50, with progressive, non-erosive R.A. I am writing in the hope that you would be willing to present the enclosed information to any of your patients who may fit into this category.

As you probably know there is quite a body of research that points to stress as a factor in R.A. There is also a wealth of research into meditation and its ability to reduce stress. Dr. Chris Atkins has agreed to loan me the Electronic Dolorimeter, a device he developed jointly with Dr. Adam Zelinski at the University of Victoria. This easy to use, non-invasive device measures quantitatively the degree of pain in the arthritic patient. The Electronic Dolorimeter provides me with the opportunity to do a quantitative analysis on what effects, if any, meditation has on R.A. patients.

I have personally meditated for 20 years and taught meditation for five years. My background is in psychology and the counselling of people in personal crisis. It is my bias and experience that a simple meditation technique is a skill that can have a profoundly positive effect on an individuals ability to cope with major life challenges. I look forward to doing this research into whether and to what extent a mental skill such as meditation can effect physical pain such as RA.

I would very much appreciate your support in passing the enclosed information on to any patient you may have that would fit into my requirements. If you have any questions or would like personal references please don't hesitate to call me at 598-8201. I thank you in advance for your time and attention.

Sincerely,

Phyllis Kjellander

(DESCRIPITION OF RESEARCH FOR SUBJECTS AND PHYSICIANS)

**The Effects of Meditation on Rheumatoid Arthritic Pain**

This study will begin in approximately the second week of September, 1992. It will be conducted by Phyllis Kjellander for her masters thesis in the Department of Psychological Foundations in Education. Her research assistant will be Jo-Marie Baker. This study will be confined to women with progressive, non-erosive Rheumatoid Arthritis, preferably between the ages of 30 and 50.

Current research on Rheumatoid Arthritis points to stress as being an aggravating factor in R.A. while research on various forms of meditation support meditation as being a simple and effective method of stress control and reduction. Currently there is very little research on whether or not meditation would be of assistance to people suffering from R.A. Phyllis Kjellander, who has meditated herself for 20 years and been a meditation teacher for 5 years is hoping to find women who are willing to join with her in exploring, through this study, if there could be a reduction in R.A. pain through the reduction of stress provided by meditation.

Each subject will be taught, privately, a very simple, generic form of meditation. As the essence of the study is to measure the effects of meditation on rheumatoid pain each subject must be willing to commit to practising this skill for 15 minutes twice a day for the duration of the study which will be approximately 7 weeks.

Each subject will be measured using an Electronic Dolorimeter. This is a very simple, non-invasive device. It consists of a small hand-held instrument and a pressure sensor made of a pressure-sensitive film. The film is placed over the rheumatoid joint, pressure is applied and the instrument gives a tenderness rating. The process takes approximately 5 minutes.

Subjects will also be asked to rate their level of pain using a Visual Analogue Scale. This is simply a straight line where one end represents no pain and the other end represents extreme pain; the subjects simply mark the place on the line that most accurately represents their level of pain.

The study involves testing with the Dolorimeter approximately every second or third day. Although the testing takes only a few minutes

the researchers recognize this is a big commitment for the subjects to make and every effort will be made by the researchers as to the times and places of those tests to ensure the greatest possible convenience for the five subjects chosen for this study.

The first week of the study subjects will simply be measured to establish a baseline. In week two subjects will be taught, individually, to meditate, a process which will take approximately 1 1/2 hours. For the next 4 weeks subjects will be asked to meditate as regularly as possible and will be measured every two to three days. Each of those weeks a one hour session with the researcher will be scheduled (only if desired) to answer any questions and/or address any difficulties. After 4 weeks of meditation the subjects will be asked to stop meditating for one week, they will however continue to be tested during this week. The 7th week the subjects will be asked to resume meditating and the tests will continue. A final session with the researcher to discuss the experience and ask any questions will mark the end of the study.

It is important to understand that all the data will be recorded using numbers, not names, and any and all information and discussion with the researchers will be strictly confidential. It is also important to understand that if, at any time, the subjects wish to drop out of the study they may do so by merely calling the researcher and notifying her of their decision.

Subjects who are chosen to be one of the five subjects in this study will be required to sign a consent form and have their doctor sign the family physician consent form.

Should you be interested in participating in this study and/or have any questions please don't hesitate to call the researcher at the number listed below.

PHYLLIS KJELLANDER

598-8201

## Subjects Consent Form

This study described above has been explained to me, and I consent voluntarily to participate in this activity. I have had an opportunity to ask questions and understand that future questions I may have about the study or about subjects' rights will be answered by the investigator listed earlier. I understand that I may withdraw from the study at any time. Any results will be completely confidential.

Signature _____

Name _____
(please print)

Address _____

_____

_____
(postal code)

Phone _____

Date _____

**Family Physician Consent Form**

This study, described on the previous page, (The Effects of Meditation on R.A.), has been explained to me and I consent to my patient participating in the study. I have had an opportunity to ask questions and understand that future questions I may have about the study or about subjects' rights will be answered by the investigator listed earlier. I understand that my patient may withdraw from the study at any time.

Patient's name

_____
(please print)

Physician's name

_____
(please print)

Physician's signature _____

Physician's address _____

_____

_____
(postal code)

Phone _____

Date _____

# APPENDIX II

## The Visual Analogue Scale

Please mark the point on the line below that most closely represents the degree of pain that you are experiencing at this moment.

(no pain) (extreme pain)

## MEDITATION CHART

| | A.M. | P.M. |
|---|---|---|
| MONDAY | | |
| TUESDAY | | |
| WEDNESDAY | | |
| THURSDAY | | |
| FRIDAY | | |
| SATURDAY | | |
| SUNDAY | | |

WEEK: _____

DATES:_____

## QUESTIONNAIRE

1) On the scale below, how would you rate the personal value you have received from the meditation techniques you have been taught? (one being of no value, 10 of exceptional value)

1_____2_____3_____4_____5_____6_____7_____8_____9_____
10

2) What five adjectives would you use to describe your meditation
experiences?

1.

2.

3.

4.

5.

3) In your opinion did meditating effect your R.A. pain level? Please describe.

4) Did you notice any changes physically, mentally, or emotionally during the 2 week period you were asked to stop meditating? Please describe.

5) Please describe any negative effects you may have experienced meditating.

6) Please describe any positive effects you may have experienced as a result of meditation.

7) Do you have any further comments?

# APPENDIX III

## QUESTIONNAIRE

**Subject #1**

1) On the scale below, how would you rate the personal value you have received from the meditation techniques you have been taught? (one being of no value, 10 of exceptional value)

X

1_____2_____3_____4_____5_____6_____7_____8_____9_____10

2) What five adjectives would you use to describe your meditation experiences?

*1. Empowering*

*2. Restorative*

*3. Stimulating*

*4. Focusing*

*5. Freeing*

3) In your opinion did meditating effect your R.A. pain level? Please describe.

*I have usually a reasonably uncomfortable level of pain in the tendons and tissue of my hands and feet. Meditating*

*reduced that to a barely noticeable level. I felt less "buzz" in my joints as well.*

4) Did you notice any changes physically, mentally, or emotionally during the 2 week period you were asked to stop meditating? Please describe.
*I felt more emotionally frazzled and physically exhausted. Mentally I felt a little overwhelmed from too much going on, when in fact I did not really accomplish or deal with that much more than usual.*

5) Please describe any negative effects you may have experienced meditating.
*none*

6) Please describe any positive effects you may have experienced as a result of meditation.
*Meditation has freed me to process stress stemming from early childhood. Prior to this, I had only been able to do this in the presence of a therapist. This has been an unexpected, but valuable bonus for me. I have also found as an artist that insights are more available to me when I am meditating. Physically, I feel more rested, able to do more when I take this time out. It is wonderful to be able to make my own mind quiet for a while.*

7) Do you have any further comments?

*I only wish that the study could have been longer. It was a very short period of time really, and what we were attempting to change in our times by meditating is really quite dramatic. As I mentioned before, some of the pain which I usually experience is difficult to measure, but in a longer study these changes might show up more clearly in charting one's overall well-being.*

**Subject #2**

1.) On the scale below, how would you rate the personal value you have received from the meditation techniques you have been taught? (one being of no value, 10 of exceptional value)

X

1_____2_____3_____4_____5_____6_____7_____8_____9_____
10

2) What five adjectives would you use to describe your meditation
experiences?

*1. Good*

*2. Enjoyable*

*3. Relaxing*

*4. Focused*

*5. Personal*

3) In your opinion did meditating effect your R.A. pain level? Please describe.

*It appeared to me that I had a slight decrease I pain, in all of my affected joints. While meditating during painful periods my focus was redirected away from my pain, (temporary escape from pain).*

4) Did you notice any changes physically, mentally, or emotionally during the 2 week period you were asked to stop meditating? Please describe.

*I felt more stress and was more wound up. I also feel that I did have a slight increase in pain (shoulders, hands, wrists, ankle, knees). My sleeps were not as sound (some periods of waking up). I felt it was a bit more difficult to think when paper writing.*

5) Please describe any negative effects you may have experienced meditating.

*There were no negative effects.*

6) Please describe any positive effects you may have experienced as a result of meditation.

*-less anxious*

*-less stressed*

*-more relaxed*

*-could think more clearly*

*-decrease in pain*

*-sounder sleep with fewer interruptions*

7) Do you have any further comments?

*I enjoyed meditating and will continue to do so. I'm interested to see if my pain will be even more decreased in*

*the longterm. I also enjoy being less anxious and in having more sound sleep.*

**Subject #3**

1) On the scale below, how would you rate the personal value you have received from the meditation techniques you have been taught? (one being of no value, 10 of exceptional value)

X

1_____2_____3_____4_____5_____6_____7_____8_____9_____10

2) What five adjectives would you use to describe your meditation experiences?

*1. Relaxing*

*2. Warm*

*3. Disconnective*

*4. Restless*

*5. Peaceful*

3) In your opinion did meditating effect your R.A. pain level? Please describe.

*I can't say for sure. I've always had days when I'm in more pain than others and that did not change during my meditation. I still had "good" days and "bad" days.*

4) Did you notice any changes physically, mentally, or emotionally during the 2 week period you were asked to stop meditating? Please describe.

*-physically no difference*

*-emotionally I didn't feel as centered, like something was missing*

*-mentally, no difference*

5) Please describe any negative effects you may have experienced meditating.

*-nothing negative which upset me or caused me distress. I would like to reach a deeper state of being. Sometimes after meditating I feel like I've done "nothing" but mind wandering the whole time but I realize that that's "okay".*

6) Please describe any positive effects you may have experienced as a result of meditation.

*-while meditating the relaxed state I sometimes got and enjoying this, because it is not a state I get into doing day-to-day activities.*

*-a feeling of "everything" is alright in my life.*

*-gets me going in the morning instead of dragging myself out of bed, I get up and have a shower and start my day earlier.*

7) Do you have any further comments?

*Meditating is something I am committed to and will do from now on. I feel with a chronic disease that anything you do to improve it should be done for a much longer time to see any results (if any). In six months to a year it will be interesting to see if I notice anything different. I have always wanted to meditate but did not know how and when I tried to teach myself I always gave up. I'm grateful for being able to be in this study and all the knowledge I've gained.*

**Subject #4**

1) On the scale below, how would you rate the personal value you
have received from the meditation techniques you have been taught? (one being of no value, 10 of exceptional value)

X

1_____2_____3_____4_____5_____6_____7_____8_____9_____
10

2) What five adjectives would you use to describe your meditation
experiences?

*1. Calming*

*2. Peaceful*

*3. Empowering*

*4. Soothing*

*5. Reviving*

3) In your opinion did meditating effect your R.A. pain level? Please describe.

*-yes, I noticed I started to feel generally better - less stiff.*

*-forgot how bad I used to feel - which is a geed sign.*

4) Did you notice any changes physically, mentally, or emotionally during the 2 week period you were asked to stop meditating? Please describe.

*-Yes, I noticed my joints became more painful. Big increase in stiffness.*

*-I had a strong desire to meditate during the 2 weeks because I was going through a lot of stressful things and I wanted to be able to feel better - more relaxed.*

*-Noticed feeling stressed and under pressure more.*

5) Please describe any negative effects you may have experienced meditating.

*nil*

6) Please describe any positive effects you may have experienced as a result of meditation.

*-I feel I have found a new life skill.*

*-Extremely enjoy my meditations*

*-Generally happier.*

*-Less affected by the everyday stresses at work.*

7) Do you have any further comments?

*Have received comments from friends and family that I seem more relaxed, pleasant.*

**Subject #5**

1) On the scale below, how would you rate the personal value you
have received from the meditation techniques you have been taught? (one being of no value, 10 of exceptional value)

X

1_____2_____3_____4_____5_____6_____7_____8_____9_____10

2) What five adjectives would you use to describe your meditation
experiences?

*1. Calming*

*2. Peaceful*

*3. Clear*

*4. Comforting*

*5. Centered*

3) In your opinion did meditating effect your R.A. pain level? Please describe.

*I think it did to a certain degree. I'm wondering if it would decrease it even more if we did it more often and possibly longer than 2x15 minutes per day. It took away the agitation and loss of patience that usually leads to a pretty sore, stiff body.*

4) Did you notice any changes physically, mentally, or emotionally during the 2 week period you were asked to stop meditating? Please describe.

*I was quire apprehensive, funny enough, when I was asked to stop. It was like I had just given myself permission to be good to myself twice a day and getting a real discipline to it when it felt like the rug had been pulled from under my feet. Also I was ready to stop for one week, not for two. I started to get more anxiety ridden and not clear again in the 2nd week.*

5) Please describe any negative effects you may have experienced meditating.

*I had none, only good effects.*

6) Please describe any positive effects you may have experienced as a result of meditation.

*A wonderful clarity and calming, reduction in stress and anxiety.*

*Ability to keep things in my mind and an added kick to my already dogged determination.*

7) Do you have any further comments?

*I love you Phyllis, I believe I have met a person in my life that mirror images me in many ways and I appreciate your realness, it touches and embraces me. Many hugs between us in the future.*

# VITA

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Educational Institutions Attended:

| | |
|---|---|
| University of Victoria | 1986 to 1993 |
| University of Alberta (Edmonton) | 1969 to 1971 |

Degrees Awarded:

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| B.A. (Psychology) | University of Victoria | 1990 |

Honours and Awards:

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ON WOMEN WITH RHEUMATOID ARTHRITIS

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March 1, 1993
(Date)