

Haptic Medicine

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Abstract

The paper introduces haptic medicine – healthcare based on loving touch for healing and preventing disease. We describe the effects of loving touch (a square inch of our skin has over 1000 nerves) on the body, brain and mind. We describe two web-based health education and media projects. The first, www.21stcenturymed.org is a place for health practitioners to start learning about touch and resources. The second project, Humans Without Borders, is a multi-lingual self help education website for everyday people. Teaching materials for these projects are based on our previous work with a form of haptic medicine known as psychophysiophilosophy with patients at Stanford Hospital, Kaiser Permanente and Lucille Packard Children's Hospital. We describe psychophysiophilosophy, relate motherly love to recent discoveries in neurosciences and give hints on ways to increase motherly love in each of us. We present a plan for moving into the future by re-introducing haptic medicine into our daily lives through self-help and as an adjunct for current physician practice. There is an exercise in self-help for the reader and an appendix of recent clinical research with profound benefits on the use of human touch for over 40 conditions.

1. Introduction

This paper introduces haptic medicine - a new frontier in 21st century healthcare based on touch that eclipses many of our current approaches to caring for our health. The idea of using loving touch as medicine is so simple as to almost be overlooked were it not for the profound benefits it provides. Physicians following the recent revolutionary work in cognitive neuroscience may be aware that in the past few years a handful of intellectually courageous researchers have published more than 100 studies that document the phenomenal benefits of loving touch over a surprisingly wide range of human ailments including PTSD, pain, wound healing, depression, asthma, auto-immune diseases, cancer, and a host of other health projects.

Basic research into how these phenomenal benefits take place has also made great strides. For example, in 2007 Canadian researcher Michael Meaney at McGill University was named a Knight of the National Order of Quebec for showing that loving touch effects change in our gene expression, brain and neuroendocrine system [1] [2] [3]. As a society and at the policy level we need to sit up and take notice of this work not only because of the profound benefits and science but because at this point in medical history it is

strategically and tactically a practical avenue of care. Haptic medicine is immediately available and accessible regardless of age, race, education, insurance, or location. It is sustainable, scalable for growing populations, clean - both research and application of touch generate no medical waste and very *very* cheap.

This paper is arranged in two parts. Part I introduces haptic medicine. It summarizes research and clinical work taking place around the world (a bibliography of clinical research with humans is included as an appendix.) Section 1 discusses the basic idea of touch as medicine. Section 2 presents the neurophysiological and neuroendocrine basis of loving touch. Section 3 describes the relevance and scientifically important role of motherly love in the process of healing with touch. Section 4 introduces a form of touch therapy known as psychophysiophilosophy, a remarkable form of haptic medicine that emphasizes motherly love and is also the basis for our health media and education project described in Part II.

Part II focuses on turning research into action. We report on the status of two health education and media projects using materials based on clinical experience with patients, families and caregivers at Stanford Hospital, Lucille Packard, Kaiser Permanente and Berkeley Primary Care and from community courses taught in Berkeley and Palo Alto, California over the past six years. Section 1 presents www.21stcenturymed.org, a place for health practitioners to start learning about touch research and resources. Section 2 introduces Humans Without Borders, a multi-lingual web resource (French, Spanish, English, Indonesian, Thai, Portugese) of self help touch therapy for every day people. It includes a step by step set of directions for a self help exercise taken from the Humans Without Borders materials. It is quite popular among stressed caregivers and health practitioners. Finally section 3 outlines an approach for bringing haptic medicine into society and its importance in reducing domestic, workplace, and school violence.

2. Touch as Medicine

The idea of using touch as part of healing is as old as mankind. We are born of touch. It was once an integral part of healthcare. Elizabeth Blackwell, the first female physician, understood the importance of touch in healing, regardless of whether the complaint was big or small. Some might say it is common sense, but no longer so common. At the time of writing, the authors are unaware of mandatory training for registration or qualification of health professions that included this subject. Yet people who are shut-in, who spend a lot of time in a sick bed or wheel chair often report being touch starved. Two years ago author Cindy Mason assisted in a wheelchair massage class at the Palo Alto YMCA. While receiving massage, some of the students began to weep because it had been so long since they had received loving contact.

Perhaps in society as in medical education there is an "omitted reality" or a collective denial about this issue, possibly because we feel there is nothing that can be done. However, as you read about some of the amazing results in applying touch therapy in medical settings, especially regarding self-help, you are surely going to change your mind. In the spirit of the baroque scientists, we have included an exercise in self-help so you may find your own truth in this experience. The scientific knowledge that motherly

touch profoundly affects the brain, immune system, spinal tissue, and mood will soon be widespread and haptic medicine will be a billable item along side pharmaceuticals and surgery. When this day comes, the way we currently treat the sick will be viewed as archaic, backwards, or worse, inhumane. Luckily, this day is not far off.



Figure 1 shows author Cindy Mason instructing in the use of self-care touch therapy.

The research at McGill University showed compassionate touch shapes our response to stress and positively affects memory. The McGill team showed the neuronal and endocrine impact of loving touch includes 1) the expression of genes controlling a neural system critical to the expression of behavioral and endocrine responses to stress 2) the development of neural connections in the hippocampus, a region of the brain controlling memory, and the pre-frontal cortex and 3) the smooth functioning of the neuroendocrine system.

While Meaney's results were from animal studies, the results have far reaching implications on many aspects of society. The Canadian government, which supports a national health program, has funded further research and begun national education programs for the prevention of violence. Funding for further research to determine whether loving care will have the same effect on human DNA has been granted for a national scale scientific effort. The project, MAVAN (Maternal Adversity Vulnerability and Neurodevelopment) will receive \$4 million over the next 5 years. While the figures may sound small by American standards, it creates a focus on research directions that can quickly result in action. Already there is a new national initiative in domestic violence prevention. The logic is that abusive environments negatively impact a mother or other caring individual's ability to provide loving touch. The program in national domestic violence prevention is actually a program to cut costs of healthcare.

In the U.S. a variety of remarkable studies relating touch and disease have largely gone unnoticed at the media, health education, or insurance levels. None the less, pioneering socio-economically advantaged patients regularly rely on haptic medicine for its ability to

relieve a variety of difficulties without additional side effects or interference with other medications, including insomnia, nausea, fatigue, pain (chronic and acute), anxiety, symptoms from stress, swelling and negative effects of medications (including chemo, radiation, anti-depressants, etc.). For example, bone marrow stem cell transplant patients at Stanford Hospital who received daily touch therapy treatments recovered an average of two weeks ahead of schedule (see Figure 2) [4]. In another example, some of the youngest patients have taken haptic medicine into their own hands as demonstrated in Figure 3. This is known as the Rescuing Hug. It is a remarkable story that was widely publicized in May, 1995. “The article details the first week of life of a set of twins. Apparently each were in their respective incubators, and one was not expected to live. A hospital nurse fought against the hospital rules and placed babies in one incubator. When they were placed together, the healthier of the two threw an arm over her sister in an endearing embrace. The smaller baby’s heart rate stabilized and her temperature rose to normal” [5]. These two babies seem to instinctively know what modern scientists and medical practitioners are now documenting.

For the sake of completion we created an appendix as part of this document that contains a bibliography of some of the studies performed here in the U.S. on touch and human health. The document is also available separately. Appendix A contains a bibliography of some of the studies performed here in the U.S. on touch and human health. The range of ailments that saw profound benefit includes aggression, anorexia, arthritis, asthma, ADHD, autism, breast cancer, bulimia, burn treatment, carpal tunnel, cerebral palsy, chronic fatigue syndrome, cocaine-addicted newborns, cognitive deficits, cystic fibrosis, depression, dermatitis, diabetes, end of life, fibromyalgia, HIV, hypertension, insomnia, job performance, labor pain, migraine headaches, multiple sclerosis, Parkinson’s disease, PTSD, premature birth, premenstrual syndrome, weight gain in preterm babies, psychiatric disorders, sexual abuse, smoking cessation, and spinal cord injuries.



Figure 2 shows the loving relationship that developed between a touch practitioner and a stem cell transplant patient. Although it is a lengthy, painful and difficult recovery, patients receiving daily haptic medicine recovered an average of 2 weeks earlier than expected by insurance providers. The patient in this photo is now the proud owner of a lavender farm in Calistoga, California.



Figure 3 shows the famous “Rescuing Hug” where an endearing embrace stabilized heart rate and normalized body temperature. Source: [5].

What seems completely obvious to us now was perfectly skeptical just a few years ago.

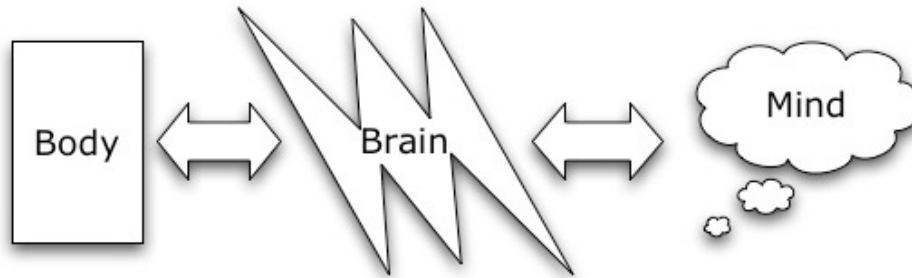


Figure 4 depicts the idea that what happens in the body affects the brain and mind. This holds the other way around as well.

Neuroscience findings over the past few decades firmly established the idea that what happens in the body affects the brain, and what happens in the brain affects the mind. These relations also hold in the other direction. Persistent mind training has an effect on brain structure and function [6][7] and therefore, the body. The new field of study known as psychoneuroimmunology investigates how the mind, brain and immune system interact. The science of psychoneuroimmunology would not be possible with our old ways of thinking about mind and body. Today there are clinics, academic departments and journals devoted to its study.

Imagine for just a few moments that you are a baroque scientist (think Newton, Hooke, etc.) and that your thoughts and publications are not constrained by funding arrangements but by the fire of your imagination. Thinking about Figure 4, you will soon draw the conclusion that this new way of thinking about the relationship between mind, brain and body are going to extend beyond psychoneuroimmunology. It could imply an entirely new paradigm for supporting and influencing health. Sight, sound, taste, smell and touch all can affect our health in profound ways, both positively and negatively depending on the stimulus. Our focus in this paper is on touch. We are not baroque scientists but are living in the 21st century with an expensive (some would say broken) health care system and a growing population. The purpose of this paper is to draw attention to the plethora of clinical research on the benefits of loving touch and to show how simply technology and media can help create accessible care based on touch.

Michael Meaney's team at the Douglas Institute in Quebec, Canada discovered that predictable and reliable sources of motherly touch affects the expression of genes that regulate positive stress response in animals. Since stress is a primary factor in disease prevention, management and healing [8][9] the presence of loving touch can no longer be viewed as a luxury, but as a necessity for health. This realization has implications for our hospitals, clinics, schools and relationships as well our society. Neuroeconomists claim that the level of touch in societies affects the level of trust which in turn affects the ability to invest and develop wealth [10] [11]. The fact is we would only want someone who is loving and trustworthy to touch us. In Part II we describe the progress of a self-help

health education project that uses common technologies (DVDs, web pages, web camera) to share instructions in a form of touch therapy based on motherly love known as psychophysiophilosophy. The next two sections describe our (current) scientific understanding of how love and touch, the principal components in haptic medicine, support human and animal health.

3. The Neurophysiology of Touch

How does loving touch have such a profound effect on our health? The short version of the story is that skin is an interface that provides a direct line of influence on the human mind, brain and body. When a human being is touched neurological and hormonal signals are created at the surface of the body that travel throughout the nervous system and change the state of the organism, altering the state of the mind, the state of the brain, and the body. There is a longer version of this story.

In one square inch of skin there are over 1000 nerves surrounded by hundreds of microscopic blood vessels. This richly innervated tissue envelopes our entire organism. Many body functions are orchestrated through the nervous system which is composed of electrical chemical processes. Contact with the skin stimulates chemical and electrical signals that travel the branches and pathways of nerves starting from the surface of the body to many locations, including brain, organs, glands, etc.

It seems only common sense that touch could have a profound effect on our health. Can you imagine working on a computer where the interface could directly change software and hardware simply by touching it? The “architecture” of our nervous system is composed of the central nervous system and the peripheral nervous system. The central nervous system includes the brain and spine and receives and sends signals with the peripheral nervous system. The peripheral nervous system runs the body - peripheral nerves can be found in every organ, gland, brain, and tissue over the entire length and breadth of the body. By some accounts “The number of sensory fibers from the skin entering the spinal cord by the posterior roots is well over half a million” [24].

Many of the electrical and chemical mechanisms created through touch have been identified. Research scientists working with animal studies in Sweden showed tactile sensory stimulation effects include measurable changes in hormonal patterns and in cortisol, gastrin, cholecystokinin, somatostatin, insulin, prolactin,, and oxytocin [12]. The effect spectrum of many of these are still unfolding. Prolactin has a modulatory role in several aspects of immune function, such as modulation of immune response (not too much, not too little). For decades, medical science thought of oxytocin only in connection with birthing and breastfeeding. Receptor sites for oxytocin have now been found in the heart, ovaries, testis, pituitary gland, pancreas, thymus, adrenal medulla and oxytocin is suggested to exert local effects in these organs. According to Swedish researchers there is evidence that oxytocin plays a role “ in the control of cardiovascular functions, thermoregulation, and pain threshold and fluid balance”[13]. Swedish researchers also found a strong correlation between oxytocin and insulin response [12].

Ancient systems of eastern medicine describe diabetes as a disease of loneliness. If

tender tactile stimulation provides a release of the chemicals that help regulate insulin then the ancient description of diabetes makes sense. Positive loving relations are generally associated with positive health. They provide us with a steady supply of warm tactile sensory stimulation including hugs, nuzzles, tugs, tussles, rubs, sex, licks, and squeezes. A number of factors can inhibit oxytocin release, such as acute stress. According to research at Colorado State oxytocin neurons are repressed by catecholamines, which are released from the adrenal gland in response to many types of stress, including fright [14].

It's no wonder we seek trusting loving relations. A steady and predictable source of love and affection insulate us from harm – inside and outside. In 2003, research by Karne Grewen at the University of North Carolina established the relation between warm relationships and positive cardiac health [15] [16]. Soon after Grewen's work was published, neuroendocrinology researchers found a correlation between wound healing and positive social relations. Working with hamsters Ohio State researchers DeVries, Craft, Kiecolt-Glaser and others, found acute stress levels (as measured by cortisol levels in plasma) in hamsters as a result of social isolation. The wounds of hamsters paired with a sibling healed twice as fast. "These animals also produced less of the stress hormone cortisol than unpaired hamsters"[8]. In human studies, hostile marital relationships resulted in delayed wound healing [9].

These research results are consistent with the positive benefits of touch seen in clinical settings and clinical research (see Appendix A for a list of studies with positive outcomes on 40 different ailments.) There is little doubt that by reducing aggression and increasing kindness and affection in our society we may have greater public health. Perhaps the phrase "healthy, wealthy, and wise" means knowing where to find a little TLC (Tender Loving Care). The next section gives a brief summary on how to increase our capacity for TLC, regardless of our marital or family state.

4. Generating Tenderness and Cultivating Motherly Love

While everyone has a pair of hands, not everyone has a loving heart. Difficult and painful things in life such as loss of a loved one, chronic illness or abuse, or even violence, can sometimes create a stone of hatred or indifference in our hearts. Sometimes we find ourselves in situations that are unbearable, or even unlivable. This can make it difficult to feel love toward anyone, even toward our selves. Given what we know about the mind body relations, it is common sense that if attitudes of hatred, fear or aggression are held long enough they may be as bad for the health as any toxic substance. Removing obstacles to motherly love, even if it is about self love, can be the key to warming up even a cold stone, freeing our energy from anger, sadness or indifference and taking better care of our selves. How can we do this?

Many cultures, traditions, religions and meditation practices have helpful lessons regarding the development of mental conditions that support kindness and compassion. For instance, many forms of meditation and prayer include the process of cultivating a mental state with the sincere and thoughtful forgiveness of others or reflecting and repenting for our own actions. Releasing these difficult feelings creates a good feeling

inside and frees up our ability to be kind hearted. This is especially important for self love. Being kind to your own self is essential to gain health and happiness. We are not suggesting you spend the day admiring yourself in the mirror or kissing up and down your whole arm, but that in order to change things or habits that are going to cause you health problems (such as eating too much, smoking, overworking, not exercising, or losing your temper) and start to do the things that sustain your health it is important to address the underlying unhappiness in your life.

To replace these old habits with better ones that support good health, it is very helpful to soften the heart towards yourself. Engaging in the practices of forgiveness and repentance can go a long way to finding your true self (open heart) again. These practices can be done for anything that tugs at the heart, no matter how old the memory. Even if you have already attempted this practice, if something still tugs at your heart, or you feel a hardness in the breath or your body at the memory of something, then it is still there and needs working on.

Sometimes, the awakening of self love causes us to see clearly the root of our problems. It may be necessary to remove yourself from a situation, job, relation, neighborhood, etc. in order to increase health and positive feelings in this way. It is not always easy to do this alone, so if you do want to try that, you may find a group setting is very helpful. These practices are quite common in many religions and cultures and are a central action of healing in most 12 step programs whose structure includes the acceptance of self and healing of emotional wounds as a group.

5. Psychophysiophilosophy

Psychophysiophilosophy is a sub branch of haptic medicine that is concerned not only with physical touch but with the idea that attitudes of the mind and heart manifest in the body. An attitude of unconditional love is equated with happiness of the body and breath. Negative feelings or attitudes, especially chronic ones, if left untended, will result in disharmony (disease) of the body. The attitudes of the mind, body and spirit can be detected by trained practitioners in the pulses taken at the wrists, and in special places around the body.

Many forms of haptic medicine teach practitioners to use techniques and allow the loving relationship to develop depending on the practitioner. In psychophysiophilosophy the expression and recognition of unconditional love in the body, attitudes and emotions is an explicit part of training. The state of unconditional love in a human being is considered to be the foundation for health or “harmony.” Deviation from this state creates tension and “disease” or “disharmony”. The application of a series of gentle holds by trained practitioners transforms “disharmony” back to a state of “harmony” (health). Although this could sound “abstract” or new-age to some, it is consistent with the previous conversation on the physiology of touch. You could say the technique of touch is the formality of the work, while the psychology, philosophy and attitude toward the body are of primary importance. In psychophysiophilosophy, it does not make sense to explain the effects of touch simply as the alleviation from pain or the release of hormones because it also addresses the healing of mental attitudes and emotions. We include here some of the

expressions used in psychophysiophilosophy by students, practitioners and instructors both in self-help and in working with clients.

Physio-psychology

How you fill your mind is what it will be.
Love is understanding.
Thoughts are things.
A breakthrough is to go beyond limits. Limits are imposed by ourselves.
What if yesterday was difficult; let it go and get rid of garbage bags.
Make a choice to change your focus.
In the pursuit of happiness it is sometimes good to be happy.
If something you own is making you feel sick, get rid of it.

Physiophysiology

Complexities create psychic fatigue.
The body doesn't lie.
Change in belief affects a corresponding change in the body.
Pains are effects. Use them as guides to the cause.
Drop the shoulders and exhale. Focus on harmonizing, not on disharmony.
It is not a technique. It is an art of knowing thyself.
The heart is the most perfect of all organs.
Formality of technique defeats its own end. Technique becomes the goal, a false security.

Physio-philosophy

I am the one that limits my abundance.
I am my best friend.
Look to this breath only.
The breath we receive is the only reality.
I can stop and exhale all trivialities.
I am my own destiny.
See the fun in every situation.

Students of psychophysiophilosophy receive many sessions during their training and the practice of self-help recipes is emphasized. As a practitioner, it is considered essential to continue to receive sessions and practice self-help in an on-going basis in order to provide the best benefits for clients. Conducting a session, practitioners experience healing of their own. It is a life long journey of developing the state of unconditional love (health). Clinical experiences and research studies with psychophysiophilosophy have been documented in the following areas: bone marrow stem cell transplant [4], multiple myeloma [17], heart transplant [18], reducing stress in nursing staff [19], mucositis[20].

Part II

Turning Research Into Action

The idea of using haptic medicine to extend care to individuals suffering in the midst of scarce and expensive healthcare resources is both strategically and tactically pragmatic. Almost everyone has two hands. Haptic Medicine is clean – no medical waste is generated either in using it or in studying it. Haptic medicine is sustainable, economically accessible and humane care. No pharmaceuticals, no electricity, and no equipment is required. All of these traits make haptic medicine an extremely valuable tool as we move into the future of healthcare. The problem becomes one of health education. When drug companies spend billions each year on direct-to-consumer advertising how do we reach out to those who might benefit? In this section we describe a health education media project for haptic medicine and provide suggestions for future work based in part on the Canadian approach to health education at a national level.

1. www.21stcenturymed.org

Over the past six years we have been developing educational media for health practitioners and for everyday people based on experience with patients, families and caregivers at Stanford Hospital, Lucille Packard, Kaiser Permanente and Berkeley Primary Care and from community courses taught in Berkeley and Palo Alto, California. We based the work on current media technologies – DVDs that can work on either television or computer, the web, and in some cases a virtual classroom using web cameras. We chose to work with psychophysiophilosophy in part because of its emphasis on self-help. It scales well for large populations and is well accepted in many countries. It is popular because it supports both physical and emotional needs. Positive results are widely reported in public journals and magazines [17][18].

For health practitioners, the website is a place to start learning about touch and resources. The website is also a place for anyone to learn to practice self-help recipes using on-line movies and pictorial/text directions (French, Spanish, English, Thai, Indonesian, Portuguese). It has been used in disaster recovery, rural and remote health situations, in the grass-root effort to age in the home, and was featured in the 2008 Evidence Based CAM for Cancer Conference. The material is particularly helpful in clinics and rehabilitation centers struggling with small budgets and growing numbers of people who need support. Using web cameras this past summer we worked with an employee of London, Ontario and occupational therapists in the Parkwood Rehabilitation Hospital who shared the teaching materials with 15 classes of students. The patients' ailments in the classes included multiple traumas from the Iraqi war, Parkinson's disease, cancer, and a variety of other serious health projects.

Within the website a number of health education resources (DVDs) exist for leaning self-help psychophysiophilosophy including basic self care, sleep care, emotional care, and a form of gentle tai chi chair exercise that integrates self-help touch therapy. In the next section we provide instructions for a popular self help exercise. We challenge the interested reader to try the exercise for 7 days. If possible please let us know how you felt

about it.

2. Humans Without Borders – An Exercise in Self-Help

Humans Without Borders is the collection of on-line self help materials on 21stcenturymed.org. We began creating this resource 3 weeks prior to the Indian Ocean Tsunami that hit Indonesia and southwest Asia in 2004. One of the artists who initially volunteered happened to be from Indonesia and was able to translate the work immediately when the tsunami hit. His sister, also Indonesian, is a physician with Doctors Without Borders who was living in Aceh at this time. The web page collection has grown to include Thai, Spanish, French, Portugese, German and Hungarian translations. Examples of the web based instructions are seen in Figure 5.

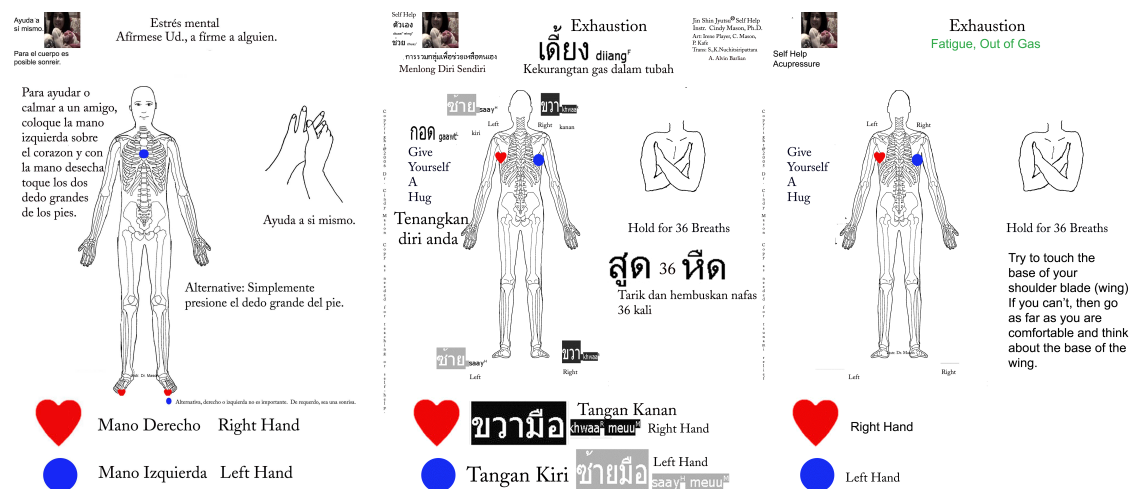


Figure 5 shows sample instructions in Spanish, Thai/Indonesia and English from the Humans Without Borders health education project.

SELF HELP EXERCISE - THE CORE HARMONIZER

We include here a recipe from the Humans Without Borders collection known as The Core Harmonizer or The Main Central. The recipe is a kind of Global Medical Technology [22] having made its way to our website after originating in India then shared with China then Japan and then with the U.S. The purpose of the recipe is to support the spine and the breath and is popular among caregivers and patients. It is particularly helpful when working in chronically stressful situations. Recipes with similar functions appear in many different forms in a variety of medical systems outside the west.

As prevention or maintenance, the Core Harmonizer exercise may be done upon waking, and/or before retiring at night. Use pillows as necessary for comfort. It may also be used as needed when working with health projects. It usually takes about 20 minutes when done properly, but may be interrupted and resumed without difficulty or loss of benefit. As this exercise proceeds, it is useful to visualize the breath coming up the back as you inhale, and down the front as you exhale. Figure 6 shows the physical locations for hands as indicated for six hand positions described below. Fingertips are often used, but palms, back of hands, or entire hand can also be used. It is important to be comfortable during

the application of the exercise, avoiding noise, drafts, etc. Quiet music may be useful if you have trouble relaxing.

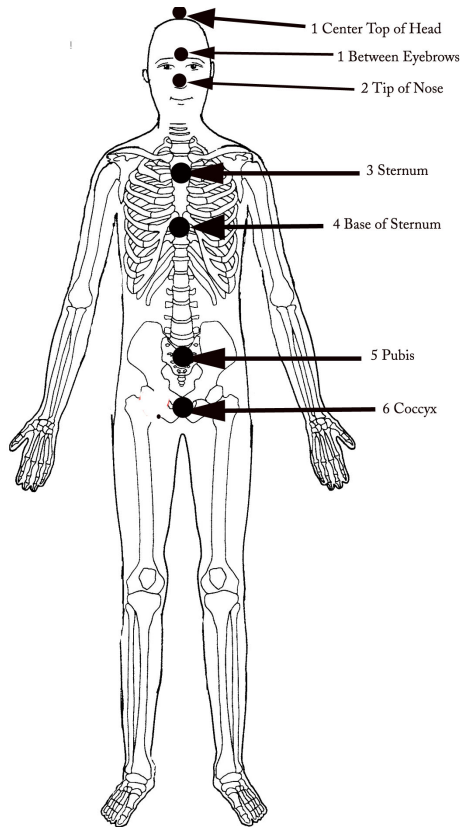


Figure 6 Diagram shows hand positions used for a popular self care recipe for spine and breath. Step 1 shows the right hand on the top of the head and left hand between the brows. Right hand remains on the crown until the last step when it moves to the back side, just at the end of the spine. Source: www.21stcenturymed.org

Follow along with the six steps described below using the illustration in Figure 6 as needed.

Step 1: Place the fingers of the right hand on the top of the head (where they will remain until step 6). Place the fingers of the left hand on your forehead between your eyebrows. Hold for 2 to 5 minutes or until the pulses you feel at your fingertips synchronize with each other.

Step 2: Now move the left fingertips to the tip of the nose. Hold them there for 2 to 5 minutes, or until the pulses synchronize.

Step 3: Move the left fingertips to your sternum (center of your chest between your breasts). Stay there for 2 to 5 minutes, or until the pulses synchronize.

Step 4: Move your fingers to the base of your sternum (center of where your ribs start, above the stomach). Hold them there for 2 to 5 minutes, or until the pulses synchronize.

Step 5: Move your fingers to the top of your pubic bone (above the genitals, center). Stay there for 2 to 5 minutes, or until the pulses synchronize.

Step 6: Keep your left fingertips in place and move your right fingertips to cover your coccyx (tailbone). Hold for 2 to 5 minutes or until the pulses you feel at your fingertips synchronize with each other.

Notes: The right hand remains on the top of the head while the left hand moves down the body until the final step. The practice is typically performed while lying flat, using pillows as necessary to maintain comfort. General instruction regarding the breath during the self care practice is to envision the breath inhaling up the back of the spine/body and exhaling down the front of the spine/body.

3. Moving Into The Future

The use of manual healing methods as medicine is recorded in the writings of Hippocrates

and is reported to have stopped approximately 100 years ago, possibly due to cross contamination. Unlike 100 years ago, modern water and sanitation systems make hand washing facilities widely available. Self-help manual healing methods, as described here, reduce the cross contamination problem significantly. The recent discoveries in neurosciences summarized here give all of us a new scientific perspective on the relation between loving touch and mental, physical and emotional health. At this point in medical history the reintroduction of touch as an adjunct to current medical practices would be practical, economical and helpful in a variety of illnesses (see Appendeix A for list of clinical studies with positive outcomes in over 40 ailments.)

To the author's knowledge the only survey in the world focused on touch or massage was in Canada in 1998. In a group of 300 Canadian physicians, 153 responded to the survey. Sixty-eight percent of respondents indicated they had "minimal or no knowledge of the benefits of massage"[21]. Of the physicians who did know about massage, 83% believed it was a useful adjunct to their private practice, 71% had given referrals to massage therapists and 73% indicated the need for such therapies was increasing. While massage and psychophysiology are two different modalities of touch, such a survey gives an indication of physician's awareness of its benefits and openness for referrals to touch therapists. The use of global medical technologies [22] in the U.S. grows each year, with massage being one of the most popular methods of alternate care [23] Although physicians used to apply manual healing methods, most body workers have little communication with physicians and patients continue to pay out of pocket for an inherently helpful healthcare modality.

What Can I Do, as a Health Provider or Educator?

The first thing to do is to try the recipe in this paper. Experiencing this for yourself will not only be a stress busting experience and will give you hands-on insight into the healing power of haptic medicine. In addition, here are some steps that you can take to

begin to address this issue:

- Educate yourself about the touch and haptic medicine and pass the information to colleagues and meetings involving regulations, insurance. A good place to start is our website, www.21stcenturymed.org
- Consider ways to include haptic medicine in practice and agency protocols, such as providing referrals to touch and massage therapists.
- Try subscribing to massage journals and keep them in your waiting room
- Try one of our self help education DVDs or download material from our website.
- Consider getting a massage once a week.
- Raise the idea of haptic medicine in agency and professional meetings, and plan to include it in professional development sessions and conferences.
- Begin offering haptic medicine services in your group, private practice or clinic.
- Provide pamphlets for domestic violence prevention in your office.
- Consider haptic medicine in your prevention care efforts.
- Create A Call for National Health Education on Kindness in Schools or Public Centers
- Create A Media Campaign to Increase Social Affect and/or Reduce Violence

References

- [1] Meaney, M.J. (2001) Maternal care, gene expression, and the transmission of individual differences in stress reactivity across generations. *Annual Review of Neuroscience*, 24:1161-1192.
- [2] Champagne, F., Diorio, J., Sharma, S., Meaney, M.J. (2001) Variations in maternal care in the rat are associated with differences in estrogen-related changes in oxytocin receptor levels. *Proceedings of the National Academy of Science*, 98:12736-12741.
- [3] Francis, D.D., Diorio, J., Liu, D., Meaney, M.J. (1999) Nongenomic transmission across generations in maternal behavior and stress responses in the rat. *Science*, 286:1155-1158.
- [4] Mason, C. (2003) Reduction in Recovery Time and Side Effects of Stem Cell Transplant Patients Using Physio-philosophy, in Psychoneuroimmunology Research Society Conference, www.pnirs.org
<http://www.21stcenturymed.org/stemcellabstract.html>
- [5] Townsend, L. (2001) Premature Twins Thrive with a “Rescuing Hug”
<http://www.nrlc.org/news/2001/NRL04/hugs.html>
- [6] Davidson, R. and Lutz, A. (2007) Buddha's Brain: Neuroplasticity and Meditation *IEEE Signal Processing Magazine*, September.
- [7] Begley, S. (2007) *Train Your Mind, Change Your Brain: How a New Science Reveals Our Extraordinary Potential to Transform Ourselves*, New York, Ballantine

Books.

[8] DeVries, A., Craft, T., Glasper, E., Neigh, G., and Alexander, J. (2007) Curt P Richter Award Winner: Social influences on stress responses and health. *Psychoneuroendocrinology*, 32:587-603.

[9] Kiecolt-Glaser, J., Loving, T., Stowell J., Malarkey, W., Lemeshow, S., Dickinson, S., Glaser, R. (2005) Hostile marital interactions, proinflammatory cytokine production, and wound healing. *Arch Gen Psychiatry*, 62(12):1377-1384.

[10] Zak, P., Borja, K., Matzner, T., and Kurzban, R. (2005) The Neuroeconomics of Distrust: Sex Differences in Behavior and Physiology, *American Economic Review Papers and Proceedings*, (95:2):360-364.

[11] Zak, P. and Knack, S. (2001) Trust and Growth, *The Economic Journal*, (111:470): 295-321.

[12] Lupoli B, Johansson B, Uvnas-Moberg K, Svennersten-Sjaunja K. (2001) Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences, Uppsala *J Dairy Res.*, 68(2):175-87.

[13] Uvnas-Moberg, K. and Lundeberg, T. (2006) Use of substances with oxytocin activity against climactic disorders, US Patent Application Publication No. US 2006/0148685 A1, July 6.

[14] Bowen, R. (2003) Pathophysiology of the Endocrine System, Colorado State Hypertexts for Biomedical Sciences.
<http://www.vivo.colostate.edu/hbooks/pathphys/endocrine/hypopit/oxytocin.html>

[15] Grewen, K., Anderson B., Girdler S., and Light K. (2003). Warm partner contact is related to lower cardiovascular reactivity, *Behavioral Medicine*, January.

[16] Grewen, K., Girdler, S., West, S., Bragdon, C., and Light, K. (2000) Stable attributions for negative events interact with SES to influence blood pressure and vulnerability to hypertension, *Journal of Women's Health and Gender-based Medicine*, 9(8): 905-15.

[17] Shannon, A. (2002) Jin shin Jyutsu Outcomes in a patient with multiple myeloma. *Alternative Therapies*, Sept/Oct., 8 (3).

[18] Sempell, P. (2000) Jin Shin Jyutsu and Modern Medicine Ancient Art Meets Heart Transplant, *Massage & Bodywork Magazine*, April/May.

[19] Lamke, D. (2001) The effects of Jin Shin Jyutsu on Perceived Stress in Nurses, Thesis. <http://www.21stcenturymed.org/nursingstress.html>

[20] Shannon, A. (2005) Jin Shin Jyutsu: New Relief and Prevention for Mouth Sores (Mucositis) in Cancer Treatment: A Case Series, White Paper.
<http://www.21stcenturymed.org/mouthsores.html>

[21] Verhoef, M.J., and Page, S.A. (1998) Physicians' perspectives on massage therapy. Canadian Family Physician, (44):1018-40.

[22] Mason, C. (2005) Global Medical Technologies, in Future of Medical Technologies, R.G. Bushko (Ed.), IOS Press, Amsterdam.

[23] Devitt, M. (2005) Physician Survey Gives Massage High Marks, Massage Today 5(12).

[24] Montagu, A. (1986) Touching: The Human Significance of the Skin, 3rd edition, Perennial Library, Harper and Row, New York, New York.

Appendix A

The following are a list of touch research papers/projects with humans in clinical settings. This is not complete list nor does it include research with animals. For a basic understanding of touch please see www.21stcenturymed.org

1. Aggression

Diego, M.A., Field, T., Hernandez-Reif, M., Shaw, J.A., Rothe, E.M., Castellanos, D. & Mesner, L. (2002). Aggressive adolescents benefit from massage therapy. Adolescence, 37, 597-607.

2. Alzheimer's

Rowe, M. & Alfred, D. (1999). The effectiveness of slow-stroke massage in diffusing agitated behaviors in individuals with Alzheimer's disease. Journal of Gerontology and Nursing, 25, 22-34.

3. Anorexia

Hart, S., Field, T. & Hernandez-Reif, M., Nearing, G., Shaw, S., Schanberg, S., & Kuhn, C. (2001). Anorexia nervosa symptoms are reduced by massage therapy. Eating Disorders, 9, 289-299.

4. Anxiety

Field, T., Morrow, C., Valdeon, C., Larson, S., Kuhn, C. & Schanberg, S. (1992). Massage reduces anxiety in child and adolescent psychiatric patients. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 125-131.

Shulman, K.R. & Jones, G.E. (1996). The effectiveness of massage therapy intervention on reducing anxiety in the work place. Journal of Applied Behavioral Science, 32, 160-173.

5. Arthritis

Field, T., Hernandez-Reif, M., Seligman, S., Krasnegor, J. & Sunshine, W. (1997). Juvenile rheumatoid arthritis: Benefits from massage therapy. Journal of Pediatric Psychology, 22, 607-617.

6. Asthma

Field, T., Hentleff, T., Hernandez-Reif, M., Martinez, E., Mavunda, K., Kuhn, C. & Schanberg, S. (1998). Children with asthma have improved pulmonary functions after massage therapy. *Journal of Pediatrics*, 132, 854-858.

7. Attention Deficit Hyperactivity Disorder

Khilnani, S., Field, T., Hernandez-Reif, M., & Schanberg, S. (2003). Massage therapy improves mood and behavior of students with attention-deficit/hyperactivity disorder. *Adolescence*, 38, 623-38.

8. Autism

Escalona, A., Field, T., Singer-Strunk, R., Cullen, C., & Hartshorn, K. (2001). Improvements in the behavior of children with autism. *Journal of Autism and Developmental Disorders*, 31, 513-516.

9. Back Pain

Ernst, E. (1999). Massage therapy for low back pain: a systematic review. *Journal of Pain Symptom Management*, 17, 65-69.

Ginsberg, F. and Famaey, J. P. (1987). A double-blind study of topical massage with Rado-Salil ointment in mechanical low-back pain. *Journal of International Medical Research*, 15, 148-153.

Hernandez-Reif, M., Field, T., Krasnegor, J., & Theakston, H. (2001). Lower back pain is reduced and range of motion increased after massage therapy. *International Journal of Neuroscience*, 106, 131-145.

10. Behavior Problems

Escalona, A., Field, T., Cullen, C., Hartshorn, K., & Cruz, C. (2001). Behavior problem preschool children benefit from massage therapy. *Early Child Development and Care* 161, 1-5.

11. Blood Flow

Mori, H., Ohsawa, H., Tanaka, T.H., Taniwaki, E., Leisman, G. & Nishijo, K. (2004). Effect of massage on blood flow and muscle fatigue following isometric lumbar exercise. *Med Sci Monit*, 10, 173-8.

12. Blood Pressure

Kurosawa, M., Lundeberg, T., Agren, G., Lund, I., & Uvnas-Moberg, K. (1995). Massage-like stroking of the abdomen lowers blood pressure in anesthetized rats: influence of oxytocin. *Journal of the Autonomic Nervous System*, 56, 26-30

13. Breast Cancer

Hernandez-Reif, M., Field, T., Ironson, G., Beutler, J., Vera, Y., Hurley, J., Fletcher, M., Schanberg, S., Kuhn, C., & Fraser, M. (2005). Natural killer cells and lymphocytes increase in women with breast cancer following massage therapy. *International Journal of Neuroscience*, 115, 495-510

14. Cancer

Rexilius, S.J., Mundt, C., Erickson Megel, M., & Agrawal, S. (2002). Therapeutic effects of massage therapy and handling touch on caregivers of patients undergoing autologous hematopoietic stem cell transplant. *Oncology Nursing Forum*, 29, E35-44.

15. Cardiovascular

Lewis, P., Nichols, E., Mackey, G., Fadol, A., Sloane, L., Villagomez, E., & Liehr, P. (1997). The effect of turning and backrub on mixed venous oxygen saturation in critically

ill patients. American Journal of Critical Care, 6, 132-140.

16. Cerebral Palsy

Hernandez-Reif, M., Field, T., Largie, S., Diego, M., Manigat, N., Seonanes, J., Bornstein, J. & Waldman, R. (2005). Cerebral Palsy symptoms in children decreased following massage therapy. Journal of Early Child Development and Care, 175, 445-456.

17. Chronic Fatigue Syndrome

Field, T., Sunshine, W., Hernandez-Reif, M., Quintino, O., Schanberg, S., Kuhn, C., & Burman, I. (1997). Chronic fatigue syndrome: massage therapy effects on depression and somatic symptoms in chronic fatigue syndrome. Journal of Chronic Fatigue Syndrome, 3, 43-51.

18. Cocaine Exposure

Wheeden, A., Scafidi, F.A., Field, T., Ironson, G., Valdeon, C. & Bandstra, E. (1993). Massage effects on cocaine-exposed preterm neonates. Journal of Developmental and Behavioral Pediatrics, 14, 318-322.

19. Cognition (Learning)

Cigales, M., Field, T., Lundy, B., Cuadra, A., Hart, S. (1997). Massage enhances recovery from habituation in normal infants. Infant Behavior and Development, 20, 29-34.

Hart, S., Field, T., Hernandez-Reif, M., & Lundy, B. (1998). Preschoolers' cognitive performance improves following massage. Early Child Development & Care, 143, 59-64.

20. Constipation

Bishop, E., McKinnon, E., Weir, E., & Brown, D.W. (2003). Reflexology in the management of encopresis and chronic constipation. Paediatr Nrs., 15, 20-1.

21. Cystic Fibrosis

Hernandez-Reif, M., Field, T., Krasnegor, J., Martinez, E., Schwartzman, M. & Mavunda, K. (1999). Children with cystic fibrosis benefit from massage therapy. Journal of Pediatric Psychology, 24, 175-181.

22. Dental Pain Ottoson, D., Ekblom, A., & Hansson, P. (1981). Vibratory stimulation for the relief of pain of dental origin. Pain, 10, 37-45.

23. Depression

Onozawa, K., Glover, V., Adams, D., Modi, N., & Kumar, R.C. (2001). Infant massage improves mother-infant interaction for mothers with postnatal depression. Journal of Affective Disorders, 63(1-3).

24. Dermatitis

Anderson, C., Lis-Balchin, M., & Kirk-Smith, M. (2000). Evaluation of massage with essential oils on childhood atopic eczema. Phytotherapy Research, 14, 452-6.

25. Diabetes

Field, T., Hernandez-Reif, M., LaGreca A., Shaw, K., Schanberg, S., & Kuhn, C. (1997). Massage therapy lowers blood glucose levels in children with Diabetes Mellitus. Diabetes Spectrum, 10, 237-239.

26. Down Syndrome

Hernandez-Reif, M., Field, T., Bornstein, J. & Fewell, R. (2006). Children with Down Syndrome improved in motor function and muscle tone following massage therapy. Journal of Early Child Development and Care, 176, 395-410..

27. Elderly

Field, T., Hernandez-Reif, M., Quintino, O., Schanberg, S. & Kuhn, C. (1998). Elder retired volunteers benefit from giving massage therapy to infants. *Journal of Applied Gerontology*, 17, 229-239.

28. Fibromyalgia

Field, T., Diego, M., Cullen, C., Hernandez-Reif, M., & Sunshine, W. (2002). Fibromyalgia pain and substance P decreases and sleep improves following massage therapy. *Journal of Clinical Rheumatology*.

29. Headache

Hernandez-Reif, M., Field, T., Dieter, J., Swerdlow, & Diego, M., (1998). Migraine Headaches are Reduced by Massage Therapy. *International Journal of Neuroscience*, 96, 1-11.

30. HIV

Diego, M.A., Hernandez-Reif, M., Field, T., Friedman, L. & Shaw, K. (2001). HIV adolescents show improved immune function following massage therapy. *International Journal of Neuroscience*, 106, 35-45

31. Hypertension

Hernandez-Reif, M., Field, T., Krasnegor, J., Theakston, H., Hossain, Z., & Burman, I. (2000). High blood pressure and associated symptoms were reduced by massage therapy. *Journal of Bodywork and Movement Therapies*, 4, 31-38.

32. Job Stress

Field, T., Ironson, G., Scafidi, F., Nawrocki, T., Goncalves, A., Burman, I., Pickens, J., Fox, N., Schanberg, S., & Kuhn, C. (1996). Massage therapy reduces anxiety and enhances EEG pattern of alertness and math computations. *International Journal of Neuroscience*, 86, 197-205.

33. Leukemia

Field, T., Cullen, C., Diego, M., Hernandez-Reif, M., Sprinz, P., Beebe, K., Kissel, B., & Bango-Sanchez, V. (2001). Leukemia immune changes following massage therapy. *Journal of Bodywork and Movement Therapies*, 5, 271-274.

34. Multiple Sclerosis

Siev-Ner, I., Gamus, D., Lerner-Geva, L., & Achiron, A. (2003). Reflexology treatment relieves symptoms of multiple sclerosis: a randomized controlled study. *Mult Scler.*, 9, 356-61.

35. Nausea

Ming, J.L., Kuo, B.I., Lin, J.G., & Lin, L.C. (2002). The efficacy of acupressure to prevent nausea and vomiting in post-operative patients. *J Adv Nurs.*, 39, 343-51.

36. Organ Transplant

Sempell, P. Jin Shin Jyutsu and Modern Medicine Ancient Art Meets Heart Transplant in *Massage & Bodywork* magazine, April/May, 2000.

37. Pain

Lundeberg, T., Abrahamsson, P., & Haker, E. (1987). Vibratory stimulation compared to placebo in alleviation of pain. *Scandinavian Journal of Rehabilitation Medicine*, 19, 153-158.

Nixon, M., Teschendorff, J., Finney, J., & Karnilowicz, W. (1997). Expanding the nursing repertoire: The effect of massage on post-operative pain. *Australian Journal of Advanced Nursing*, 14, 21-26.

38. Parkinson's

Hernandez-Reif, M., Field, T., Largie, S., Cullen, C., Beutler, J., Sanders, C., Weiner, W., Rodriguez-Bateman, D., Zelaya, L., Schanberg, S. & Kuhn, C. (2002). Parkinson's disease symptoms are reduced by massage therapy and progressive muscle exercises. *Journal of Bodywork and Movement Therapies*, 6, 177-182.

39. PTSD (Post-Traumatic Stress Disorder)

Army Chief Of Staff: Fort Bliss PTSD Program Should Be Replicated, *A Soldier's Mind*, September, 10, 2008. <http://soldiersmind.com/2008/07/22/army-chief-of-staff-fort-bliss-ptsd-program-should-be-replicated/>

40. Sexual Abuse

Field, T., Hernandez-Reif, M., Hart, S., Quintino, O., Droese, L., Field, T., Kuhn, C., & Schanberg, S. (1997). Sexual abuse effects are lessened by massage therapy. *Journal of Bodywork and Movement Therapies*, 1, 65-69.

41. Sleep

Field, T., Kilmer, T., Hernandez-Reif, M. & Burman, I. Preschool Children's Sleep and Wake Behavior: Effects of Massage Therapy. *Early Child Development and Care*, 120, 39-44.

42. Spinal Cord Injuries

Diego, M.A., Field, T., Hernandez-Reif, M., Hart, S., Brucker, B., Field, T., Burman, I. (2002). Spinal cord patients benefit from massage therapy. *International Journal of Neuroscience*, 112, 133-142.

43. Surgery Recovery

Mitchinson, A., Kim, H., Rosenberg, J., Geisser, M., Kirsh, M., Cikrit, D., Hinshaw, D., (2007). Acute Postoperative Pain Management Using Massage as an Adjuvant Therapy A Randomized Trial, *Arch Surg*. 142(12):1158-1167.

44. Stroke

Mok, E., & Woo, C.P. (2004). The effects of slow-stroke back massage on anxiety and shoulder pain in elderly stroke patients. *Complement Ther Nurs Midwifery*, 10, 209-16.

45. TMJ

Adiels AM, Helkimo M, Magnusson T. (2005). Tactile stimulation as a complementary treatment of temporomandibular disorders in patients with fibromyalgia syndrome. A pilot study. *Swed Dent J*.29(1):17-25.