

**THE EFFICACY OF ABDOMINAL SELF-MASSAGE IN THE
TREATMENT OF ADULT CONSTIPATION: A RANDOMIZED
CONTROLLED TRIAL**

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The work reported in this thesis is original and carried out by me solely, except for the acknowledged direction and assistance gratefully received from colleagues and mentors.

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ABSTRACT

This study examined the effects of abdominal self-massage on stool symptoms, frequency of bowel movements, and perceived quality of life. The research utilized a quasi experimental 2x4 pre-test/post-test control group design with block randomization. The convenience sample included seventy-two adults, aged twenty-six to eighty-two, who met the Rome III diagnostic criteria for constipation and began the study. Twenty-nine participants of the control group and thirty-five participants of the intervention group completed the study. The depended variables used included the Bristol Stool Form Scale, Patient Assessment of Constipation (PAC-SYM), Patient Assessment of Constipation Quality of Life (PAC-QOL), and Psychological General Well-Being Index (PGWBI). The independent variable consisted of fifteen minutes of daily abdominal self-massage, employed by the intervention group for the duration of four weeks. A two-way repeated measures analysis of variance (ANOVA) was used for data analysis. General Quality of Life ($p \leq .05$) and Constipation-Related Quality of Life ($p \leq .01$) reached statistical significance. Notable subscales were Worries and Concerns ($p \leq .01$), Satisfaction ($p \leq .05$), Self-control ($p \leq .05$), and Vitality ($p \leq .05$). The intervention group also showed a significant decrease in abdominal symptoms ($p \leq .01$). No significant findings were noted in the frequency of bowel movements and stool symptoms. The control group showed no significant change over the ten week period. These finding support the hypothesis that abdominal self-massage increases the quality of life in adults suffering from constipation. The findings reject the hypotheses that abdominal self-massage decreases stool symptoms and increases the frequency of bowel movements. Discussions, conclusions, and recommendations for future research are included.

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CHAPTER 1: INTRODUCTION

A tight flat belly is hailed as the beauty ideal in contemporary Westernized culture. This comes at a price, since the ensuing constriction often compresses vital organs and restricts diaphragmatic breathing. While studies reveal that there is a strong fixation on achieving the thin body image idealized by societal norm, not much further attention seems to be given to the abdomen unless there is the experience of discomfort or disease.¹ In contrast, ancient civilizations recognized the lower belly as a source of physical, emotional, and spiritual vitality and focused on it in healing, meditation, dance, and martial arts.² To this day, the belly is revered in the traditional Asian culture as an important energy center; a relaxed and protruding belly is considered a sign of strength, health, maturity, balance, groundedness, and a tranquil mind.³

Abdominal self-massage has been used in ancient Taoist monasteries to support the health of the energy centers found in the abdomen and to prepare monks for advanced spiritual practices.⁴ All throughout the world, abdominal massage has additionally been used to soften tight areas within the belly, deepen the breath, assist in pregnancy and labor, and support the process of digestion and elimination.⁵ While abdominal massage has lost some of its predominance in the Western world over the last seventy years, body workers are beginning once more to integrate abdominal work into their routines due to its success in treating musculoskeletal, digestive, urinary, and reproductive complaints as well as headaches and stress-related issues.⁶ This research study examined the efficacy of abdominal self-massage in the treatment of adult constipation and perceived quality of life.

Background and Statement of Problem

Even though bowel health continues to be a social taboo topic, for most people the ritual of daily elimination is an important aspect of their well-being. Chronic constipation has become a major grievance for Westerners, with a mean estimated occurrence of 22 percent in North America, Europe, and Oceania.⁷ In 2004, eight million office visits and an annual health care cost of \$1.6 billion were reported.^{8,9} Constipation, a collective term used to describe infrequent, incomplete, hard, dry, or difficult to pass stools, thus comprises a significant medical health issue.¹⁰ For many, constipation progresses in severity over the years and adversely impacts quality of life.¹¹ Since constipation is related to a multitude of possible causes, treatment has proven to be difficult, especially since many people suffering from chronic constipation delay seeking medical advice.¹²

Self-medication is often attempted through an increase in fiber intake, fluid intake, and exercise or the use of over-the-counter laxatives.¹³ Laxatives are also commonly prescribed by medical doctors as a first line of treatment; however, due to their habit-forming nature, only short-term use is generally recommended.¹⁴ Many patients voice displeasure with the conventional medical treatment of constipation and seek alternative interventions, such as herbs, supplements, massages, colonics, yoga, and relaxation techniques.¹⁵ These alternative interventions reflect the general consumer trend of increased use of complementary and alternative medicine (CAM) services and products.¹⁶ Complementary and alternative medicine also has been gaining popularity and ultimately momentum in research in the past two decades.

Previous studies regarding the use of abdominal massage in the management of constipation have turned up promising evidence, even though weak study designs, flawed intervention protocols, and small sample numbers prevent definite conclusions at this point.¹⁷ A recent systematic review by McClurg and Lowe-Strong strongly suggested that abdominal massage might be an effective modality for the treatment of constipation.¹⁸ However, not every adult has the resources, time, or opportunity to seek out trained practitioners of abdominal massage. Self-massage might be an empowering choice of treatment for individuals suffering from constipation. This research study investigated the field of abdominal self-massage.

Research Question and Null Hypotheses

This study endeavored to clarify the research question: Does abdominal self-massage have a positive effect on stool symptoms, frequency of bowel movements, and perceived quality of life in adults with constipation?

The following null hypotheses were proposed:

- 1) There is no increase in perceived quality of life in adults with constipation engaging in daily abdominal self-massage compared to the general population.
- 2) There is no decrease in stool symptoms in adults with constipation engaging in daily abdominal self-massage compared to the general population.
- 3) There is no increase in bowel movements in adults with constipation engaging in daily abdominal self-massage compared to the general population.

Purpose and Importance of the Study

The purpose of the study was to explore scientifically whether abdominal self-massage increases the frequency of bowel movements, reduces stool symptoms, and

improves quality of life in adults with constipation. Establishing a link between abdominal self-massage, healthy elimination patterns, and increased quality of life might advance knowledge in the field of gastroenterology and change the prevailing belief that chronic constipation best be treated with the use of laxatives. It could empower people to perform a safe and easy health-care routine without the need for equipment, medication, and practitioners, thus saving health care costs and valuable resources. Positive results of a protocol implemented in a real-life setting could advance holistic theories regarding the cause, treatment, and side-effects of constipation.

Scope of the Study

This research study was designed to work with adults suffering from constipation. Eighty-four volunteers were recruited through community appeal and, if none of the exclusion criteria were met, were assigned to the intervention group or control group by block randomization. The research question was examined by teaching to the intervention group a protocol of abdominal self-massage in a ninety-minute class during which participants attained a level of fidelity with the self-massage protocol. Participants were then asked to implement this protocol daily for four weeks. A second class, one week later, allowed the principal investigator (PI) to assure fidelity and fine-tune techniques as needed. Two optional classes were offered to support study participants and increase compliance. This study was designed to measure stool symptoms, frequency of bowel movements, and perceived quality of life.

Definition of Terms

Biofeedback: method for learning to increase one's ability to control biological responses, such as blood pressure, muscle tension, heart rate, and elimination. Instruments may be used to measure physiological responses and make them apparent to the patient

Chi: life energy, believed in Taoism and Chinese philosophy to be inherent in everything

Chi Kung: traditional Asian breath and movement practice designed to develop and increase chi

Chi Nei Tsang: internal organs massage

Chyme: semisolid mixture of food and gastric juices

Dantian: Chinese name for energy centers, some of which are located in the abdomen

Dysbiosis: intestinal bacteria imbalance, possibly resulting in health problems

Enteric Nervous System: subdivision of the peripheral nervous system that controls the gastrointestinal system; it is considered to be the second brain due to its complexity and ability to function autonomously

Hara: Japanese word for belly as well as for the quality of character that emerges when the life force in the abdomen is activated

Meridians: a term derived from Traditional Chinese Medicine that refers to the network of energy channels in the human body. Research shows that meridians are closely related to the nervous system

Myelination: myelination around the axon of a neuron increases the speed of transmission

Peristalsis: progressive wavelike muscle contractions in the esophagus, stomach, and intestines. In the colon it is the mechanism for movement of fecal material

Peritoneum: serous membrane lining the walls of the abdominal and pelvic cavities and covering the abdominal organs

Transit Time: the time required for ingested material to pass through the gastrointestinal tract

List of Abbreviations and Acronyms

ANS	Autonomic Nervous System
CAM	Complementary and Alternative Medicine
CMT	Certified Massage Therapist
CNS	Central Nervous System
CNT	Chi Nei Tsang
ENS	Enteric Nervous System
IBS	Irritable Bowel Syndrome
IT	Information Technology
PI	Principal Investigator
PNS	Parasympathetic Nervous System
SNS	Sympathetic Nervous System

CHAPTER 2: REVIEW OF LITERATURE

This review aims to critically examine and summarize previous research on three major areas relevant to the presented study: the large intestine, constipation, and abdominal massage.

The Large Intestine

The large intestine is the last part of the digestive tract. At its most basic, the digestive tract is a flexible and hollow tube of about twenty-five to thirty feet and runs from the mouth to the anus.¹⁹ The gastrointestinal tract is designed to transform food and drink into cell nourishment and overall energy by various physical and chemical processes. By the time food reaches the large intestine via the ileocecal valve, most of the vitamins and minerals have been extracted. The large intestine is the organ that deals with the unabsorbed and undigested materials left over from the digestive processes.²⁰

Anatomy of the Large Intestine

The large intestine, which frames the small intestine, is about four to five feet in length and about two inches wide.²¹ It entails the cecum, colon, and rectum. The cecum, which connects to the ileum and extends about two and a half inches below it, is a blind pouch that marks the beginning of the large intestine.²² The appendix attaches to its medial and inferior surface. The cecum's upper end opens into the colon, which consists of four parts: the ascending, transverse, descending, and sigmoid colon. The ascending colon originates from the cecum. It ascends about six inches up the right side of the abdomen where it turns left at the hepatic flexure in a seventy to eighty degrees angle and

changes into the transverse colon.²³ The transverse colon crosses the abdomen in a downward loop from the right hepatic flexure to the left splenic flexure. The two flexures are suspended from the diaphragm by the phrenicocolic ligaments.²⁴ The transverse colon is not only the most mobile part of the large intestine, but also the longest with eighteen to twenty inches in length. The descending colon, about eight inches in length, starts at the splenic flexure, which forms a tight angle of approximately fifty degree.²⁵ It ends at the pelvic brim and opens into the sigmoid colon. The sigmoid colon is up to eighteen inches and loops in an s-curve first up towards the navel and then down towards the sacrum where it opens into the rectum.²⁶ Eight inches in length, the rectum becomes the short anal canal at the anorectal junction. Here the internal and external anal sphincters modulate the passing of feces.²⁷

The large intestine receives its blood supply, oxygen, and cell nutrients from the superior and inferior mesenteric arteries; blood, gas, and absorbed nutrients are drained from it through the superior and inferior mesenteric veins.²⁸ Lymph fluids drain to the paraaortic lymph nodes. The large intestine is held loosely in place by peritoneal folds that connect the outer layer of the large intestine to the posterior abdominal wall.²⁹ The transverse colon is additionally covered anteriorly by the greater omentum, a peritoneal fold that hangs down from the stomach.³⁰ Besides providing some form of attachment, the peritoneum reduces friction, stores fat, and resists infection.

The walls of the large intestine consist of four layers: the mucosa, submucosa, muscularis, and serosa.³¹ The mucosa provides smooth intestinal lining, absorbs water and nutrients, and protects against the invasion of bacteria, viruses, and toxins. The submucosa is the layer of connective tissue right beneath the mucosa.³² It is filled with

blood vessels, lymph, and nerves.³³ Next are two muscle coats. The inner circular muscle layer forms sphincters, and the external longitudinal muscle layer of three bands, known as teniae coli, forms the individual segments known as haustra.³⁴ The haustra facilitate the mixing of the colonic content and the transition from semi-liquid material to solid stool.³⁵ Rhythmic peristaltic contractions carry the waste material through the large intestine.³⁶ The serosa, the outer serous membrane, consists of a layer of connective tissue that anchors into the peritoneal folds.³⁷ It secretes a lubricating fluid designed to reduce friction.³⁸

Innervation of the Large Intestine

In the early 1990s, the field of neurogastroenterology reemerged, one hundred years after British physiologist Johannes Langley coined the term enteric nervous system (ENS) to emphasize both the independent functioning and the interconnectedness of the cerebral brain and the gut brain.^{39,40} The large intestine has thus both intrinsic innervation through the enteric nervous system and extrinsic innervation through its connection to the autonomic nervous system (ANS).⁴¹

Enteric Nervous System (ENS)

The ENS consists of over 100 million neurons and is embedded in the tissue lining of the gastrointestinal tract, including the esophagus, stomach, and small and large intestine. In the colon, the neurons can be found both in the submucosa (Meissner's Plexus) and in between the two muscle layers (Auerbach's or Myenteric Plexus).⁴² The ENS coordinates intestinal processes such as digestion, absorption, peristalsis, and elimination, and is able to function independently from the central nervous system (CNS).⁴³ The ENS produces neurotransmitters such as 5-hydroxytryptamine (5-HT), also

known as serotonin), dopamine, glutamate, and peptides; controls the secretion of enzymes, fluid exchange, and blood flow; and interacts with the immune system.^{44,45}

Together with the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS), the ENS is considered to be a subdivision of the ANS.⁴⁶ The ENS and CNS communicate through the SNS, PNS, nerve reflexes, and neuropeptides.⁴⁷ Consequently, the ENS transmits both sympathetic and parasympathetic nerve fibers.⁴⁸ The sympathetic nerve fibers run along the prevertebral ganglia, whereas the parasympathetic nerve fibers run along the second to fourth sacral spinal nerves and the tenth cranial nerve, also known as the vagus nerve.⁴⁹

Vagus Nerve

The vagus nerve is a major player in the regulation of the large intestine and the communication with the CNS. Approximately 80 percent of the parasympathetic nerve fibers of the bidirectional vagus nerve are afferent sensory fibers, conveying information from the viscera to the brainstem.⁵⁰ This suggests that intestinal health has a great impact on mental health. The remaining 20 percent of vagal nerve fibers are efferent, conveying information from the brainstem to the viscera.⁵¹ The efferent fibers originate predominantly in two areas of the brainstem nuclei, and thus function within their own vagal circuits. The two circuits are known as the dorsal vagal and the ventral vagal circuit.⁵² The dorsal vagal circuit is the older branch of the vagal system. It is unmyelinated and originates in the dorsal motor nucleus of the brain stem. This dorsal vagal complex maintains gut tone and promotes digestive processes by modulating gastric motility and polypeptides.⁵³ The ventral vagal circuit is the newer branch of the vagal system. It is myelinated and originates in the nucleus ambiguus of the brain stem.

The ventral vagal complex regulates the organs above the diaphragm. It is also involved in our availability for social engagement and pleasure.⁵⁴

Effects of Nervous System Arousal on the Large Intestine

When the ANS is regulated, the PNS elicits an overall relaxation response known as “rest and digest.” On the level of the gut, there is an increase in secretion, digestion, and peristalsis.^{55,56} When the SNS becomes activated through physical activity, excitement, stress, or arousal, it inhibits the parasympathetic dorsal vagal regulation of the gut and contracts the sphincters, thus hindering digestion and peristalsis.⁵⁷ A study by Taché et al. argued that a consistent over-activation of the SNS, often caused by exposure to prolonged stress, can lead to chronic constipation.⁵⁸

Renowned nervous system researcher Steven Porges described that, when ongoing severe stress is experienced, the PNS becomes over-activated rather than inhibited. At that time, the body reverts to the “most primitive structural system.”⁵⁹ He suggests that massive surges from the dorsal vagus nerve can cause immobilization or behavioral shutdown in a person, resulting in possible speechlessness, dissociation, freezing, and pathophysiological conditions such as asthma, ulcers, colitis, and chronic constipation.⁶⁰ Yet even a relaxed nervous system does not necessarily guarantee ease of elimination. The flora of the gut is an important component in digestive health.

Flora of the Large Intestine

Half of the volume of the intestinal contents is gut flora, which consists of microorganisms such as bacteria, yeast, and fungi. The intestinal bacteria, weighing a total of about four pounds, are the main component of the flora. Approximately four hundred different species of bacteria, totaling a number of about one hundred trillion

bacteria, live on the mucosal surface of the large intestine.⁶¹ To put this into perspective, there are ten times more bacteria in our body than there are cells.⁶² Twenty strands of bacteria make up three quarters of the bacteria; the most common amongst them are bacteroides, bifidobacteria, and eubacterium.⁶³ Native bacterial species permanently colonize the large intestine and are mostly attained by the first year of life, whereas transient bacteria are typically ingested from food and drink.⁶⁴ This explains why diet has a huge impact on the metabolism and composition of intestinal flora and thus overall health.⁶⁵ Intestinal bacteria are generally classified as friendly or unfriendly bacteria, depending on whether they live in symbiotic or antagonistic relationship with the host.⁶⁶

Friendly Bacteria

Friendly bacteria offer protective, nutritive, and therapeutic benefits. They provide the front line in immune defense; help in the fight against infectious disease; manufacture B vitamins and folic acid; synthesize vitamin K; and increase the assimilation of minerals that require acid for absorption, such as calcium, copper, iron, magnesium, and manganese.⁶⁷ They strengthen resistance to food poisoning, improve nutrient absorption, prevent vaginal and urinary tract infections, and support ease in elimination. Some of the friendly bacteria help to acidify the intestinal tract and thus protect against an overgrowth of harmful bacteria. A lower pH in the colon may also enhance peristalsis and potentially decrease colonic transit time.⁶⁸ A recommended microbial balance in the gut is 80 percent friendly to 20 percent unfriendly bacteria.

Dysbiosis

Bacterial balance can be disrupted by emotional stress, illness, antibiotics, steroid drugs, medications, chemotherapy and radiation, oral contraceptives, environmental

chemicals, poor food choices, excess alcohol, and slow bowel transit time. The resulting microbial imbalance within the gut is known as dysbiosis. Russian biologist Ilya Mechnikov was one of the first researchers who emphasized that “disease starts in the gut.”⁶⁹ His work on intestinal bacteria and dysbiosis was awarded the Nobel Prize in 1908.⁷⁰ When dysbiosis is present, the gut is exposed to an overgrowth of yeast, fungi, parasites, and potentially harmful strains of bacteria. A wide variety of substances are produced as a result of this overgrowth, such as amines, ammonia, hydrogen sulfide, indoles, phenols, and secondary bile acids. These substances may hurt the intestinal lining and become absorbed into the blood stream, causing potentially system-wide effects such as arthritis, autoimmune illness, B12 deficiency, chronic fatigue syndrome, cystic acne, a propensity towards colon and breast cancer, food allergies, candida, psoriasis, diarrhea, and constipation.⁷¹ Clearly, the balance of friendly to unfriendly bacteria has a great impact on physiology, pathology, and the common functions of the large intestine.

Functions of the Large Intestine

The functions of the large intestine are centered on the semi-liquid chyme, the waste material left over from the digestive processes. Chyme enters the large intestine via the ileocecal valve and travels through it within twenty-four to forty-eight hours. In constipated individual, the time may be much longer.⁷² The colon has several tasks: fermentation and absorption; fluid balance; motility and mobility; storage and elimination.⁷³

Fermentation and Absorption

On its path along the colon, the chyme's initial mixture of unabsorbed fiber, water and some vitamins is mixed with mucus and bacteria to thicken and smooth the chyme. The bacteria ferment and putrefy the waste material and in the process create vitamins such as vitamin K, vitamin B12, thiamine and riboflavin, which are then absorbed by the colon.⁷⁴ The bacteria in the colon also chemically break down fiber to produce nutrients for their own survival and to nourish the cells lining the colon. This illuminates the importance of soluble and insoluble fiber for long-term colon health.

Fluid Balance

The colon also plays an important part in maintaining the fluid balance of the body. Of the more than two gallons of water that enter the colon daily, optimally only about seven tablespoons get expelled with the feces.⁷⁵ As the residual water and electrolytes are extracted, the chyme is compacted into solid form feces towards the descending and sigmoid colon. One third of fecal matter consists of living and dead bacteria as well as dead cells. The remaining two thirds are composed of digested foods, undigested fibers, and water.⁷⁶

Mobility and Motility

The chyme and eventually solid fecal matter are moved along the colon by means of mobility and motility. Mobility describes the influence of the diaphragm and cardiac rhythm on moving along the chyme, while motility points to movement caused by peristaltic contractions. Peristalsis is initiated by the muscular layers within the wall of the large intestine, found between the mucosa and the serosa. The smooth longitudinal muscles that run along the length of the large intestine are shorter than the intestines themselves. As described earlier, this discrepancy leads to the formation of segmented

small pouches, called haustra.⁷⁷ As a haustrum fills, the resulting distension stimulates muscles to contract, thus pushing the contents from one haustra to the next via contractions that occur approximately every twenty-five minutes.

Defecation

The urge to defecate arises when a sufficient amount of fecal matter has reached the sigmoid colon. As its walls expand, spinal sensory nerves trigger the threshold stimuli. This elicits a major contraction within the sigmoid colon, which empties the fecal matter into the rectum.⁷⁸ The distention in the rectum initiates, if it is chosen, the active phase of defecation. The puborectal sling muscle and the internal and external anal sphincters relax, and the rectal musculature contracts. The colon and rectum descend and the rectum becomes elongated. Chest, abdominal, and pelvic muscles are contracted, increasing intra-abdominal and intra-rectal pressures throughout the process of evacuation. If successful, fecal matter is discharged via the anus. After a bowel movement, the anal canal is closed again by its sphincters.⁷⁹

Starting around the age of three or four, defecation is no longer a reflex but becomes a voluntary act that can be inhibited by will.⁸⁰ Should the ‘call of nature’ not be heeded, a process of reverse peristalsis returns the fecal matter from the rectum back to the sigmoid colon where additional water is absorbed to reduce internal pressure. Delayed defecation is thus known to harden stool and is considered one of many possible causes of constipation.

Constipation

Constipation is one of the most common digestive complaints.⁸¹ Not a disease, it is a collective term used for a variety of symptoms which go far beyond reduced stool

frequency.⁸² Numerous studies found that straining and hard stools are much more commonly reported than infrequent defecation.^{83,84} Patients who claim to be constipated may experience incomplete or ineffective defecation, hard or lumpy stools, sensations of pain, anal blockage, excess flatus, bloating, cramping, nausea, a prolonged time to stool, or the need for manual maneuvers to facilitate defecation.^{85,86} Additionally, the duration and severity of constipation symptoms can vary strongly between individuals, from mild acute occurrences to severe ongoing conditions.^{87,88} For reasons of simplicity, many doctors still define constipation as two or less bowel movements per week.⁸⁹ In order to standardize the concept of constipation and provide an objective entrance criterion into research studies, the Rome questionnaire was developed in 1988 by an international working team.⁹⁰ Currently in its third version, the diagnostic tool continues to struggle with a disparity between self-reported and measured identification of constipation.^{91,92} A prevalence survey conducted with 349 Spanish volunteers revealed that only half of the people who self-reported constipation met the Rome II inclusion criteria.⁹³

Prevalence of Constipation

The prevalence of constipation is generally difficult to establish since most people do not seek medical advice but attempt to self-medicate with laxatives or life-style changes.⁹⁴ Nonetheless, it was found that a surprising number of individuals struggle with chronic symptoms. Epidemiology surveys of recent years claimed that 2 to 27 percent of the general Western population experienced constipation, with most estimates ranging between 12 and 19 percent.^{95,96} The variance can be traced to an inconsistency of diagnostic criteria, demographic factors, samplings, and study designs.⁹⁷ As stated in chapter one, a systematic review of the epidemiology of constipation by Peppas et al.,

published in 2008, established the mean value of reported constipation in North America, Europe, and Oceania at 22 percent.⁹⁸

Epidemiology surveys suggested that constipation was over two times more prevalent in women than in men, with both genders following a similar age distribution.⁹⁹ The prevalence of constipation was said to significantly increase at age sixty-five and older. Research indicated, though, that healthy older adults showed no signs of reduced colon motility. Colon function seemed to be influenced more by age-related difficulties such as chronic disease, medications, and immobility than by aging itself.¹⁰⁰ Decreased bowel motility was observed to be more common in nonwhites than whites, and more widespread in rural regions.^{101,102} A review by Lembo and Camilleri indicated that constipation was also associated with low family income, physical inactivity, limited education, depression, and a history of sexual abuse.¹⁰³

Health Care Costs of Constipation

Health care costs associated with constipation are consistently rising. In 1989, Sonnenberg and Koch reviewed four US surveys and reported a steady annual average of 2.5 million medical visits for constipation from 1958 to 1985; Martin et al. repeated the review in the new millennium and found that constipation-related physician visits increased to 5.7 million in 2001.¹⁰⁴ A study by Shah et al., looking at US national surveys from 1993 to 2004, revealed that ambulatory visits for constipation increased to 8 million by 2004, therefore more than tripling since 1985.¹⁰⁵ Most people seeking treatment initially consulted with their primary health care provider, yet Shah et al. traced an increase in visits to gastroenterologists, pediatricians, and emergency rooms as well.¹⁰⁶

In 85 percent of all visits to a health care provider for constipation, a laxative was prescribed.¹⁰⁷

The health care cost for the treatment of chronic constipation in the United States was approximated at \$7,522 per patient,¹⁰⁸ with total annual costs reaching \$1.6 billion in 2004 in an estimate using the Verispan database.¹⁰⁹ This estimate included evaluation, testing, treatment, and over-the-counter laxatives. It is safe to conclude that constipation, due to its chronicity and high prevalence, accounts for substantial direct and indirect health care costs, especially since constipation is also associated with a decreased sense of well-being and an increased absence from work.¹¹⁰

Etiopathogenesis of Constipation

Constipation is typically classified into two categories: functional constipation and secondary constipation.¹¹¹ However, a simple categorization is often difficult since constipation is frequently caused by multiple disorders.

Functional Constipation

Functional constipation, also known as idiopathic constipation, describes symptoms with no underlying structural or biochemical abnormalities.¹¹² Clinicians attempt to categorize functional constipation according to symptoms, colonic function, and patterns of defecation, even though common overlap regularly makes a distinct categorization difficult.¹¹³ The three main subtypes of functional constipation are normal transit constipation, slow transit constipation, and pelvic floor dysfunction.¹¹⁴ Nyam et al., in a study of one thousand patients with severe chronic constipation over an eight year period, noted that 13 percent had slow transit constipation, 25 percent pelvic floor

dysfunction, 3 percent a combination of slow transit and pelvic floor dysfunction, and 59 percent normal transit constipation connected to Irritable Bowel Syndrome (IBS).¹¹⁵

Normal Transit Constipation

A smaller study by Glia et al. assessed 134 individuals with functional constipation and, precisely like Nyam's study, found that 59 percent had normal transit time.¹¹⁶ Normal transit time is defined as fecal matter taking about twenty-four to forty-eight hours to pass through the large intestine.¹¹⁷ Normal transit constipation thus points to feces passing through the colon at a normal pace, yet symptoms of constipation such as hard stools and difficulty with defecation exist due to an irritable colon.¹¹⁸ Abdominal pain, bloating, and increased psychosocial stress are often experienced by people in this category.¹¹⁹ A study by Glia and Lindberg evaluated the quality of life of eighty-four patients with functional constipation. They discovered that people suffering from normal transit constipation had lower scores in the Psychological General Well-Being Index (PGWBI) compared to individuals with slow transit constipation.¹²⁰

Even though IBS with a predominant symptom of constipation is categorized separately in clinical practice, it is important to reiterate that it is the most common type of constipation and often connected to normal transit constipation. Patients who suffer from normal transit constipation connected to IBS often experience additional symptoms of abdominal pain, bloating, incomplete evacuation, mucus in the stool, mild colonic inflammation, bacterial overgrowth, and at times alterations in stool consistency and frequency.^{121,122} Some renowned researchers in the field see the classification into functional constipation and constipation-predominant IBS as artificial since Western medical doctors prescribe the same drugs and treatments.^{123,124}

Slow Transit Constipation

Slow transit constipation, also known as colonic inertia, is a neuromuscular motility disorder that features decreased muscle activity in the descending colon, sigmoid colon, or the entire colon.¹²⁵ Both the smooth muscles of the gut and the enteric nervous system are involved in this disorder.¹²⁶ Glia et al. stated that 58 percent of people suffering from slow transit constipation experienced its onset in childhood.¹²⁷ Other possible reasons for the occurrence of slow transit constipation included difficult childbirth and pelvic surgery.¹²⁸ Slow transit constipation is almost exclusively seen in young women, with symptoms of infrequent defecation averaging two or less bowel movements per week, hard stool, straining, bloating, abdominal discomfort, and visceral hypersensitivity.^{129,130} Symptoms usually increase over the years. Fiber supplementation and laxatives are minimally effective in this category.¹³¹ Self-administered enemas and suppositories can be helpful; surgery may be recommended in extremely severe cases.¹³²

Pelvic Floor Dysfunction

It is estimated that approximately 25 percent of people with constipation have normal transit times but suffer from pelvic floor dysfunction.¹³³ Pelvic floor dysfunction, also known as pelvic outlet obstruction, pelvic floor dyssynergia, anismus, spastic pelvic floor syndrome, and paradoxical puborectalis contractions, describes the difficulty of evacuating feces.¹³⁴ Its cause may be anatomical (examples include genital prolapse and herniation of the rectum, vagina, or small intestine), functional (such as rectoanal neuromuscular malcoordination), psychological, or nerve-related.^{135,136} In pelvic floor dysfunction, the rectal and anal muscles and especially the external anal sphincter and puborectalis sling muscle stay contracted.¹³⁷ As a result, the pelvic floor does not descend and the anorectal canal stays angled.¹³⁸ The ensuing obstruction often

necessitates excessive and prolonged straining at defecation, and at times digital evacuation is needed to dislodge the feces.¹³⁹ Bowel movements are frequently described as incomplete.¹⁴⁰ Pelvic floor dysfunction can also lead to a decrease in rectal sensation, therefore requiring a large volume of feces in the rectum before the urge to defecate is felt.¹⁴¹ It is interesting to note that more than half of the people suffering from this disorder report back pain.¹⁴² Pelvic floor dysfunction is diagnosed by Western medical doctors with the help of electromyographic testing, radiologic testing, or manometric pressure testing.¹⁴³ Stimulant and osmotic laxatives are thought to be mildly helpful in supporting evacuation and decreasing abdominal discomfort.¹⁴⁴ Biofeedback has shown immense results in retraining the coordination of abdominal, rectoanal, and pelvic-floor muscles.¹⁴⁵

Secondary Constipation

Constipation can also be secondary, caused by pharmacologic agents, neurologic and endocrine disorders, metabolic or hormonal disturbances, dietary and environmental factors, concurrent illness, inactivity, and depression.^{146,147,148} Additional risk factors include early adverse life events, psychological conditions, stress, psychosocial factors, immobility, and lack of social support.^{149,150}

Pharmacologic

A large number of pharmacologic agents have been linked to constipation. Neuroactive drugs, often prescribed in anesthesiology, psychiatry, neurology, and intensive care medicine, can interrupt motility in the gut due to interacting with the transmitters and transmitter receptors in the brain and the enteric nervous system.¹⁵¹ Therefore opiates, pain medications including narcotics, analgesics, antidepressants,

antipsychotics, and antispasmodics are known to potentially cause constipation. Other drugs linked to constipation include iron supplements, antihypertensives, aluminum and calcium-based antacids, cold and anti-nausea preparations with anticholinergic effects, blood pressure medications, antibiotics, and diuretics.^{152,153}

Neurologic and Endocrine

Abnormalities, degeneration, and injury of the enteric nervous system or the vagus nerve may contribute to constipation.¹⁵⁴ Diseases of the peripheral and central nervous system, such as Hirschsprung disease, Parkinson's disease, multiple sclerosis, stroke, spinal cord injury, and autonomic or diabetes related neuropathy affect the nervous control of colonic motility and are potential causes of constipation.^{155,156} Examples of endocrine disorders known to cause constipation are hypothyroidism, hypopituitarism, porphyria, and tumors of the pancreas and adrenal glands.^{157,158}

Metabolic and Hormonal

Diabetes mellitus causes decreased gastrointestinal motility, as do increased calcium levels and decreased potassium levels in the blood.^{159,160} Research is currently investigating hormonal factors since women are disproportionately afflicted with constipation. Studies have not shown a clear relationship between changes of sex hormone levels and constipation at this point.¹⁶¹ Changes in gut hormones have been observed in patients with severe idiopathic constipation, yet it is unclear whether it is a cause or a consequence of the condition.¹⁶²

Dietary and Environmental

Insufficient fiber and water intake, excessive use of alcohol, as well as food hypersensitivities have been reported to contribute to constipation.¹⁶³ Also, a highly

decreased food intake, as seen in some elderly and dieters, may result in deficient fecal content; consequently, colonic propulsion as well as signals for evacuation might be negatively affected.¹⁶⁴ Eating disorders in general, such as anorexia nervosa and bulimia nervosa, have been found to have a significant association with constipation.¹⁶⁵ Other risk factors widely believed to contribute to the development of constipation are immobility, lack of privacy, and a sedentary lifestyle.¹⁶⁶

Psychological

Numerous studies reported the occurrence of psychological disorders according to DSM IV criteria coexisting with constipation at over 60 percent.^{167,168} Houghton et al. investigated the effects of emotional states on visceral sensations in a research study with twenty participants suffering from IBS. They established a possible psychosomatic basis for chronic constipation by demonstrating the “critical role of the mind in modulating gastrointestinal functions.”¹⁶⁹ It is important to note, though, that many clinicians question whether psychological distress is a consequence or a cause of constipation.¹⁷⁰ Constipation has also been linked to childhood abuse. Patients with constipation have an increased occurrence of sexual and physical abuse when compared to a normal population.^{171,172} Constipation was furthermore associated with psychological symptoms of depression as well as significant impairment in quality of life.^{173,174,175} A study by Garvey et al. concluded that 27 percent of 170 patients that presented with major depression had constipation.¹⁷⁶

Other Causes and Contributors

Many more factors that are thought to contribute to the development of constipation. Pregnancy and the compression of the intestine by the uterus may affect

colonic motility.¹⁷⁷ Aging might cause a slowing of the metabolism with concurrent decreased intestinal activity and muscle tone; furthermore, some individuals have a genetic disposition for slow transit constipation.¹⁷⁸ Rectal and sigmoid tumors, fibroids, and peritoneal adhesions from past surgeries can cause impaired colonic functioning, as can laxative abuse.^{179,180} Disruptions of life routines and normal diet, as frequently experienced in traveling, are a common cause of intermittent constipation. A lack of privacy and comfort as well as a loss of dignity can cause people to suppress bowel movements.¹⁸¹ Finally, regular disregard of the defecation urge, whether due to unavailability of a toilet, emotional stress, or inopportune timing, can lead to constipation.

Complications Associated with Constipation

Gastroenterologist and clinical researcher John F. Johanson declared constipation to be a “slowly progressive disorder that rarely resolves,” with a natural course that is not well researched at this point in time.¹⁸² A survey by Talley et al. indicated that 89 percent of individuals who self-identified as constipated stayed symptomatic over a period of twelve to twenty months.¹⁸³ Whereas infrequent bowel movements, hard stool, and straining may be initial symptoms, it is quite common for people to develop abdominal pain, cramping, and bloating in the lower abdomen over the years; a decrease in energy and appetite as well as a general feeling of being unwell may additionally be experienced as the condition progresses in severity.¹⁸⁴ If left untreated, further side effects may include headaches and migraines, nausea, fatigue, skin rashes, abdominal distention, confusion, and anxiety.^{185,186} More severe complications associated with chronic constipation, though infrequent, are leaky gut syndrome; hemorrhoids; anal

fissures; rectal prolapse; overflow diarrhea; cardiac irregularities; urinary dysfunction; an increased risk of gall stones, colon and rectal cancer; and fecal impaction, a condition that may potentially lead to fecal incontinence and a megacolon.^{187,188,189} In very singular cases, death due to bowel perforation has been reported.¹⁹⁰ Nonetheless, even though hospitalization and mortality are rare, various research studies indicate that constipation has a hugely negative impact on quality of life.¹⁹¹

Health-Related Quality of Life

Numerous studies observed a direct correlation between constipation, decreased health-related quality of life, and increased psychological distress.^{192,193,194} A study by Sailer et al. with 325 patients revealed that individuals suffering from severe chronic constipation scored as low on quality of life assessments as people suffering from fecal incontinence.¹⁹⁵ A recent study by Rao et al. investigated quality of life and psychological profiles in 158 participants who were divided into three groups, namely pelvic outlet obstruction, slow transit constipation, and a control group. The results concurred with former studies, revealing that individuals with pelvic floor dysfunction experienced more psychological discomfort, including paranoia, anxiety, and hostility, as well as impaired health-related quality of life than individuals with slow transit constipation. Not surprisingly, the control group was least affected.¹⁹⁶ It seems safe to conclude that the quality of life in individuals with chronic constipation is compromised.

Treatment of Constipation

Management of constipation has been described as difficult due to a multitude of possible and overlapping causes, a variety of subtypes, misconceptions about treatment, the stigma surrounding the disorder, and a general delay in seeking treatment.¹⁹⁷

Drossman et al. observed in a survey of U.S. households in 1993 that only 22 percent of individuals who self-identified as constipated were under medical care.¹⁹⁸ To this day, increased water and fiber intake together with exercise are often recommended as a first choice treatment. More severe constipation is conventionally treated with laxatives (bulk, osmotic, or stimulant), stool softeners, lubricant agents, prokinetic agents, or enemas.¹⁹⁹ Biofeedback is successfully used to treat pelvic floor dyssynergia.²⁰⁰ Alternative treatments such as herbal supplements, homeopathy, stress management, mental imagery, yoga, reflexology, and massage therapy are increasingly utilized by patients dissatisfied with conventional medicine.²⁰¹

Fiber – Water - Exercise

As mentioned above, people afflicted with constipation are initially counseled to increase their fiber and water intake, and to exercise more.^{202,203} Awareness of fiber began in the 1970s. When the British surgeon Denis Parsons Burkitt worked in Africa, he observed that the native people had a high fiber diet, a large quantity of daily fecal output, and a general ease of defecation.²⁰⁴ His ensuing hypothesis of insufficient dietary fiber intake as a main contributor to constipation has been widely popular in the United States ever since.²⁰⁵ Burkitt's conclusions are questioned today as controversial data appeared in countless research studies. A review by Tan and Seow-Choen indicated no clear association between constipation and fiber intake exists and suggested that dietary fiber does not significantly affect constipation.²⁰⁶ On the contrary, excessive fiber intake by constipated individuals was thought to cause rapid fermentation in the gut, often resulting in cramps, flatulence, distention, and colic.²⁰⁷ Even though a high fiber intake of about fifteen to twenty grams a day was reported to be beneficial for people with

normal colonic function, chronically constipated people generally experienced difficulty evacuating the increased bulk in the colon.²⁰⁸ It therefore might be safe to conclude that increased fiber intake could be a prevention for, but not necessarily a cure of, chronic constipation.

Fluid intake, the second recommendation given by Western doctors, is a tradition that has not been fully studied at this point.²⁰⁹ Research studies suggested that decreased fluid intake or excessive fluid loss hardened stool consistency and thus potentially caused constipation or fecal impaction.²¹⁰ While a fluid intake of a minimum of seven cups daily seemed to be an effective intervention for dehydrated subjects,²¹¹ no studies have shown significant results when fluids were increased in well hydrated subjects.²¹²

Exercise, the third standard recommendation, has also not been scientifically proven to be an effective treatment for constipation.^{213,214} Only one study by De Schryver et al. indicated that physical activity reduced straining and the sensation of incomplete defecation; no increase in the number of bowel movements was reported.²¹⁵ Similar to the findings regarding increased fiber intake, exercise seemed to be a preventative measure rather than a cure. A health study following sixty thousand women concluded that there was a reduced risk of constipation in women who were physically active.²¹⁶

It seems that the customary recommendation of fiber, fluid, and exercise as a first choice treatment has been based on tradition rather than fact. It has been thought that the trio might be moderately helpful in some cases of mild constipation without pathological causes, yet most likely not effective in treating chronic conditions.²¹⁷ A common second line of treatment for chronic constipation has been the prescription of a laxative.²¹⁸

Laxatives

Laxatives are foods or drugs taken to accelerate defecation and to soften hard stool.²¹⁹ The National Digestive Diseases Information Clearinghouse (NDDIC) announced that Americans spent about \$725 million annually on laxatives.²²⁰ Laxatives can be ingested in liquid, powder, tablet, or granule forms and are readily available over-the-counter. A multinational survey by Wald et al. estimated that about 40 percent of Americans suffering from constipation used laxatives, with an increase in usage with age.²²¹ A recent review of randomized controlled trials by Miles et al. compared laxatives for constipation in palliative care settings; the results were concurrent with earlier reviews in that there was a lack of evidence to support the use of one type of laxative over another.^{222,223} Concurrent with a previous review by Petticrew et al., Miles et al. reported the quality of the trials using laxatives as rather low due to small numbers of participants and flaws in methodology; nonetheless, the results seemed to suggest that laxatives did increase, albeit not significantly, the frequency and ease of bowel movements.²²⁴

Various types of laxatives exist, such as bulk forming, osmotic, stimulant, and lubricant laxatives. Each has its own mechanism and function. Bulk forming laxatives increase the bulk and water content of the stool, thus stretching the intestinal walls and triggering increased peristaltic motion. In severe constipation, bulk forming laxatives may cause cramping, gas, and bloating in consumers.²²⁵

Osmotic laxatives consist of salts or saccharines. They draw water into the colon and as such increase the volume, soften the feces, and stimulate peristalsis. They, too, can cause bloating, flatulence, and abdominal cramping. They are also known to wash minerals out of the body.²²⁶

Stimulant laxatives cause muscular contractions by irritating the intestinal walls, often causing cramp-like abdominal pain. Emollient and lubricant laxatives moisten and soften the stool so it passes through the intestines more easily; regular use might hinder the absorption of fat-soluble vitamins. Other laxative drugs include suppositories and enemas.

Laxatives are consistently reported to be habit forming, with a tendency to worsen the constipation in the long run.^{227,228} Physicians usually recommend them as a short term intervention for the retraining of the bowel.²²⁹ Shah et al. noted that laxatives, mostly osmotics, were prescribed to constipated patients in 44 percent of visits to a physician.²³⁰ Laxatives are also widely used in the treatment of the elderly and in palliative care.²³¹

Biofeedback

A comprehensive review of thirty-eight studies on the use of biofeedback for constipation caused by pelvic floor dysfunction revealed a 78 percent success rate when pressure biofeedback was used.²³² Pressure biofeedback employs an anorectal manometry catheter to give information on intestinal pressure during balloon expulsion.²³³ Electromyography biofeedback, which uses surface electrodes to give information regarding puborectalis muscle and external anal sphincter coordination during balloon expulsion, had a 70 percent success rate.^{234,235} When five or more biofeedback sessions were attended by the patient, the outcome was reported to be as good as that of medical management or surgery.²³⁶ Additionally, biofeedback has a low incidence of adverse effects. As such, it has become a prominent treatment for patients with pelvic floor dysfunction, teaching coordinated pelvic floor muscle and anal sphincter

relaxation together with the generation of intra-abdominal pressure to elicit a propulsive force.²³⁷

Enemas and Colon Hydrotherapy

Enemas have been used in the ancient cultures of Rome, Greek, Egypt, and China for cleansing and healing treatments.²³⁸ Fluids, which may or may not contain a laxative or herbal solution, are funneled into the rectum in order to induce a bowel movement. Overuse may cause an imbalance in electrolytes or trigger a “lazy colon syndrome” of reduced peristalsis.²³⁹

Surgery

Surgery is usually the last resort used for severe slow transit constipation. Total colectomy with ileorectal anastomosis is the most commonly performed surgical procedure.²⁴⁰ Even though stool frequency increased in 90 percent of the people post-surgery, Zutshi et al. reported persistent postoperative symptoms, such as incomplete bowel movements, stool seepage, and abdominal and pelvic pain.²⁴¹

Diet

Evidence increasingly points to a potential connection between food allergies and chronic constipation.²⁴² Food hypersensitivities contributing to constipation may include milk, wheat, sugar, processed foods, eggs, tomatoes, soy products, legumes, and others.²⁴³ When food allergies are thought to be present, a restricted oligoantigenic diet is initially recommended to eliminate food sources that may be correlated to constipation. After a certain amount of time on this highly restricted diet, one food at a time is reintroduced every two to four days. During this time, a close monitoring for a return of symptoms allows to pinpoint which foods might contribute to constipation.²⁴⁴

Friendly bacteria are also increasingly utilized to support healthy elimination, both in the form of fermented foods and probiotics. A review of clinical trials on probiotics for the treatment of constipation revealed that results regarding stool frequency and consistency were statistically significant, if modest, when more than one strain was administered.²⁴⁵

Eastern Medicine Treatment

The standard Chinese medical approach to constipation is the use of herbal medicine, preferably in the form of individualized decoctions.²⁴⁶ Some of the most common patterns leading to constipation are: chi, yin, yang, or blood deficiency; excess heat or cold; chi stagnation; and wind.²⁴⁷ Herbs are prescribed after a thorough diagnosis and with the intention of assisting the natural function of the digestive system by restoring its balance over time rather than purging the colon.²⁴⁸ Clients are also advised on diet and lifestyle changes, each carefully recommended for the particularities of the underlying patterns causing the constipation.²⁴⁹ Other standard treatments, all in combination with herbs, include acupuncture, abdominal massage, breathing exercises, and chi kung. At this point, high quality herbal patent formulas are also available for the most common patterns underlying constipation.

Chinese herbs have been used in scientific trials with great success. A review of eighteen high quality Chinese research studies on herbal medicine for the treatment of constipation suggested that Chinese herbs “are effective for managing constipation and are safe.”²⁵⁰ It is important to note, though, that chronic constipation has been thought to require up to two years of an herbal maintenance program before a cure is established.²⁵¹ Three trials that investigated the efficacy of acupuncture alone, without the inclusion of

herbs, suggested positive results even though definite conclusions could not be reached.²⁵²

Two Chinese review articles compared the efficacy of Chinese herbal medicine and Western laxatives in the treatment of constipation.^{253,254} A total of thirty-two studies, performed in China and meeting rigorous scientific research standards, were included in the reviews. The results were consistent. In all trials, herbal medicine was suggested to be more beneficial than controls or laxatives in the management of constipation.^{255,256} The only time that Chinese herbal medicine was reported to be less effective than another intervention was in comparison to abdominal massage, a modality that was found to be highly effective in increasing the frequency of bowel movements and decreasing straining, hard stools, and blockages.²⁵⁷

Others

Abdominal massage is only one of many alternative modalities used for the treatment of constipation. Other healing approaches used include nervous system regulation through psychotherapy, relaxation therapies, and guided imagery; the use of Western and Ayurvedic herbal medicine; supplements; acupuncture; homeopathy; yoga; reflexology; and a retraining of correct toileting habits, such as prompt response, a footstool to elevate legs, and upright positioning during defecation.²⁵⁸

Conclusion

Current allopathic treatment approaches are being questioned, estimated to be ineffective in 89 percent of patients with chronic constipation.²⁵⁹ The trio of exercise, fiber, and fluid has been found to be ineffective in the treatment of chronic constipation. Laxatives and enemas might help momentarily but usually do not provide long-lasting

results. Even more, long-term use of laxatives and enemas has been commonly advised against due to dependency issues.²⁶⁰ Biofeedback has been revealed as an excellent treatment method for constipation due to anorectal dysfunction, yet has often not proven helpful for other types of constipation. Dietary changes have been found beneficial for constipation caused by food allergies and poor food choices. The prescription of Chinese herbal medicine, even though highly successful, has not been appropriate for Western doctors due to the complexity of skills needed for assessment and herb selection. A large-scale survey by Irvine et al. reported that one third of patients seeking medical treatment for constipation were dissatisfied with the level of symptom improvement achieved by standard medical care and were looking for more effective treatment approaches.²⁶¹

Abdominal massage was once used as a standard treatment for constipation in Western medicine.²⁶² It is regaining popularity as a treatment modality for digestive complaints, and it is the choice of intervention used in this study. The next section will review the literature on abdominal massage and health self-care behavior.

Abdominal Massage

Touch is instinctual for mammals, a basic need that has been deemed vital for early development and continues to be important for well-being throughout life.²⁶³ Pain is soothed by physical contact, and it can easily be reasoned that touch therapy is older than recorded time. Prehistoric cave paintings depicting massage have been dated to 15,000 B.C.²⁶⁴ Throughout the centuries and around the world, therapeutic touch has been part of the healing traditions of aboriginal cultures and developed civilizations alike, often being an esteemed element of medical treatment.^{265,266} Abdominal massage

presents a specialization in the field of massage therapy. For the purpose of completeness, a short summary of massage therapy research follows.

Massage Therapy

Massage therapy, a system of soft-tissue manipulation for pain reduction, rehabilitation, and other therapeutic purposes, is a popular modality within the field of complementary and alternative medicine (CAM) to this day.^{267,268} A survey conducted in 2002 by the Census Bureau for the National Center for Health Statistics with 31,044 people reported the number of Americans that had received a massage that year at 5 percent; massage was indicated to be the fifth most popular CAM technique after herbs, relaxations techniques, chiropractic, and yoga.²⁶⁹

Scientific research on massage therapy, even though growing, is still relatively limited in the West. The underlying reasons are manifold. Grant awards are scarce since funding is largely influenced by the pharmaceutical industry and allopathic community.²⁷⁰ Additionally, very few massage therapists have the training and scientific credentials needed to design quality studies in their field and to present the findings to the medical community.²⁷¹ There is only one institute in the United States dedicated to scientific research of touch therapy, the Touch Research Institute in Miami founded in 1992 by its director Tiffany Field.²⁷²

Field emphasizes that many of the available research studies on massage therapy display quality issues. Small sample sizes, no control groups, lack of randomization, inappropriate statistics, and the use of “too many different massage therapy techniques” are some of the common problems.²⁷³ Additionally, massage therapy often clashes with the paradigm of standardized trials due to favoring individualized treatment protocols and

a combination approach of different techniques and modalities.²⁷⁴ Systematic reviews of controlled and randomized research studies on therapeutic massage have found a tendency towards enhanced growth in infants; pain reduction in chronic pain conditions such as fibromyalgia, rheumatoid arthritis, low back pain, and migraines; reduced neuromuscular pain in people with spinal cord injuries and multiple sclerosis; improved pulmonary function; improved sleep quality; increased range of motion; increased relaxation; and a reduction of stress, depression, and anxiety.^{275,276}

Even though the quality and quantity of massage therapy research has been increasing in recent years, the professed effectiveness of therapeutic touch is still largely based on empirical evidence and clinical observations collected over thousands of years.²⁷⁷

Abdominal Massage Therapy

As old as massage therapy, abdominal massage has been explicitly mentioned in discussions on the history of massage and is said to have been used throughout the centuries all over the world for the treatment of digestive difficulties.²⁷⁸ In North America, from the late nineteenth century until the pharmaceutical revolution in the 1940s, abdominal massage was held in high esteem by conventional Western medicine.^{279,280} Medical writings indicate that the majority of physicians at that time believed that it was “the most desirable, sure, and efficient remedy” for the treatment of constipation.²⁸¹ Even severe cases of constipation, unresponsive to other interventions, were often successfully treated with abdominal massage.²⁸² Medical practitioners not only performed abdominal massage, they also encouraged their patients to engage in daily abdominal self-massage and breathing exercises.²⁸³ As pointed out before,

abdominal massage is currently making a slow return as a viable healing modality in the Western world.

Abdominal Massage Research

Contemporary Western research on abdominal massage as a treatment for constipation and its accompanying symptoms started in 1992 with a small group study by Klauser et al. The authors evaluated sixteen volunteers, comprised of nine constipated adults with a mean age of sixty-eight and seven healthy males with a mean age of twenty-seven. The design featured two weeks of baseline, three weeks of intervention performed on both healthy volunteers and constipated patients, and a final two weeks of follow-up. The number of bowel movements, stool weight, stool consistency, transit time, and rated well-being were measured in the last five days of each period. The massage protocol was administered for twenty minutes three times a week. The patient's laxative use was discontinued throughout the intervention period only. Overall results showed only a mildly positive trend in the intervention group. The authors concluded that abdominal massage did not alter colonic function and could not "be recommended as an alternative form of treatment for chronic constipation."²⁸⁴ Nonetheless, a significant increase in absolute stool frequency and stool weight of the control group was noted between the baseline period and the intervention period. The study showed no randomization, presented a large age, gender, and health difference between groups, featured a small sample size, missed information on activity levels and dropout, and relied on a short period of measurements. The discontinuation of laxatives throughout the intervention period but not the baseline or follow-up period further weakened the study results, as did the short-term treatment protocol of nine sessions.²⁸⁵

Constipation can be caused by neurological disorders. English physiotherapist Marian Emly (1993) presented a case study of a twenty-one year old male with cerebral palsy and epilepsy. During physical therapy treatments, scheduled three times a week, Emly massaged the patient's abdomen for fifteen to twenty minutes. The massage started with gentle strokes to reduce abdominal spasticity and eventually used more pressure along the path of the large intestine. During the five weeks of abdominal massage, the patient was able to overcome his severe constipation. Prior to the treatment protocol enemas were needed in order for him to empty his bowels. After each session with Emly, the man had an unaided bowel movement. Besides physical benefits, Emly reported that the success of the treatments improved the patient's self-esteem and gave him a sense of achievement.²⁸⁶

That same year, a pilot study by Resende et al. (1993) investigated a mixed approach of abdominal massage and exercise for treating twelve immobile elders suffering from chronic constipation. The mean age of the patients was eighty-one years. A baseline period of six weeks was followed by twelve weeks of intervention. Laxatives and enemas were discontinued during the intervention period unless there was no bowel movement reported for five consecutive days. The intervention consisted of a ten minute rest period, ten minutes of abdominal massage, ten minutes of rest, and twenty minutes of exercise. It was applied five times a week. A significant increase in the number of bowel movements as well as a significant decrease in fecal incontinence and the use of enemas were reported. There was no change observed in intestinal transit time. The authors concluded that the combined exercise and abdominal massage routine greatly benefited the patients and could replace laxatives and enemas. The use of two independent

variables, massage and exercise, made a conclusion of the efficacy of just one of the variables impossible. There was no control group due to a reported difficulty in recruitment, and no official follow-up period. Personal communication with the nursing staff six months after the intervention period revealed that five of the twelve patients still did not require laxatives.²⁸⁷

Five years after the initial publications, two studies using abdominal massage on disabled patients suffering from constipation appeared in medical journals. A well-designed pilot study by Emly et al. (1998) utilized a randomized cross-over design to compare abdominal massage and laxative treatment. Thirty-two disabled institutionalized adults with a history of chronic constipation, after sixteen days of baseline measures, engaged in seven weeks of treatment A, one week of washout period, and another seven weeks of treatment B. There was no follow-up period. The twenty-minute massage protocol was administered five times a week. Laxatives and abdominal massage were reported as equally effective in reducing transit times and increasing stool frequency. Abdominal massage, unlike the use of laxatives, was reported to have no known side-effects. Furthermore, patients and staff mentioned positive psychological effects from the abdominal massage, such as enjoyment, better communication and behavior, and an increased capacity to tolerate touch. Unfortunately, the study was too small to allow for definitive generalizations and conclusions.²⁸⁸

Richards (1998) presented a small and informal study on a similar topic, using abdominal self-massage. Ten disabled patients were instructed in rolling a ball along the path of the colon for ten minutes a day. Frequency of bowel movements and intake of medication were noted for each patient. The study missed a control group as well as a

baseline, defined treatment period, and follow-up period. Because of the small group size, the results were not clinically significant. Still, the informal study confirmed a positive trend by noting an increase in the number of bowel movements and a discontinuation or decrease of medication in some patients.²⁸⁹

A small scale systematic and critical review of abdominal massage for the treatment of constipation was presented by Edzard Ernst (1999), a renowned physician and professor of complementary medicine. He evaluated the few Western studies available and observed that all had methodological flaws. His final conclusion suggested that there was no scientific evidence that abdominal massage did indeed cure constipation, yet he agreed that it might be a potentially effective treatment modality for chronic constipation.²⁹⁰

Although single case and small group designs do not provide scientific evidence and thus do not allow for generalizations to be made, they seem appropriate for the beginning stages of scientific research. Before engaging in time-consuming and costly randomized clinical trials, the evaluation of single case designs and pilot studies might answer initial questions regarding safety and efficacy, and point the way towards promising themes and questions within the field.²⁹¹ Small scale studies on abdominal massage continued to be published for another decade before the first full-size trial was conducted.

After researching how abdominal massage effected constipation in elders, disabled adults, and patients suffering from neurological disorders, Joyce Preece (2002) designed an informal six-week pilot project for a hospice setting, partly utilizing self-massage. Gentle abdominal massage was taught to fifteen constipated patients and their

care takers to be applied ten minutes a day by either nurses, massage therapists, or the patients themselves. No baseline or follow-up periods were observed, nor any notation on whether patients or care-givers engaged in abdominal massage. Subjective information on the efficacy of the intervention was collected through weekly interviews. All patients reported less flatulence and abdominal distension after the first week of treatment. By week six, eight of the fifteen patients shared that they had resolved their constipation and experienced normal bowel movements. Three patients experienced continuous constipation, yet less severe accompanying symptoms. Four patients were unavailable for follow-up interviews since they had left hospice. All remaining hospice patients chose to continue with abdominal massage, reporting physical benefits, an increase in quality of life, and an overall positive experience. Though methodologically flawed, the study substantiated the notion that abdominal massage might be a promising modality for the treatment of constipation.²⁹²

Another report on abdominal self-massage appeared in a letter to the editor of the *Journal of Neurology*. Liu et al. (2005) described a single case study of a sixty-four year old woman suffering from HAM/TSP, a progressive neurological disorder. The woman was said to have discovered abdominal self-massage in an attempt to remedy her severe chronic constipation naturally. Her protocol effectively brought on rectal waves, bowel sensations, and intermittent defecation, therefore obliterating the need for laxatives and enemas.²⁹³

A second case study on abdominal self-massage was published the following year. Harrington and Haskvitz (2006) introduced an eighty-five year old woman with severe slow transit constipation who, upon learning a simple technique of abdominal self-

massage along the colon, applied it ten minutes a day for a total of thirteen weeks.

Throughout this time period, the elder reported regular bowel movements without any need for straining, digital evacuation, or enemas.²⁹⁴

Constipation is also a constant issue for people suffering from paraplegia. Two studies appeared in European journals in 2006, investigating possible benefits of abdominal massage for this population. In March, Albers et al. introduced the results of a pilot study with seven paraplegics suffering from severe constipation. The study was designed as a three week trial, with one week of baseline, one week of daily fifteen-minute abdominal massage, and one week of follow-up. A questionnaire and a Daily Log tracked the efficacy of the treatment protocol, exploring questions regarding stool consistency, number of bowel movements, and subjective patient feedback. The authors reported that the number of bowel movements increased throughout the intervention period and continued to stay high in the follow-up period. Patients reported less time spent on defecation, and the general feedback regarding abdominal massage was positive. The pilot study did not feature a control group, the group size was too small to allow for clinical significance, and the questionnaire used was not validated. Yet the study reported a positive trend on a physiological and psychological level, emphasizing once more that abdominal massage might be a promising intervention worthy of further study.²⁹⁵

In December of 2006, Ayas et al. published an uncontrolled study with twenty-four paraplegics suffering from constipation. Phase one of the research, lasting three weeks, included a standard high fiber diet and digital stimulation. Phase two added fifteen minutes of daily abdominal massage, administered five days a week for a total of

eight weeks. Laxatives were used as needed. No follow-up period was observed. The authors noted a significant decrease in fecal incontinence, abdominal distension, and total colonic transit time, as well as a significant increase in the number of bowel movements. Subjective patient feedback and rated well-being were not included in the study report. Even though methodologically flawed on many accounts, the study affirmed the reported results by Albers et al. and declared abdominal massage a promising modality for treating paraplegics suffering from constipation.²⁹⁶

The first work with children appeared one year later in the form of six published case studies. Moss et al. (2007) used a single case methodology in the study of five children with learning disabilities suffering from chronic constipation. Massage was administered twice daily. The authors reported a positive trend towards improved stool consistency in four out of five children, and a positive trend towards an increased number of bowel movements in three out of five children. Even though objective data did not indicate significant results, parents described the study as a positive and empowering experience and “unanimously perceived abdominal massage to be an effective treatment for constipation.”²⁹⁷

Quist and Duray (2007) reported a single case study of an eight-year old boy with chronic constipation who, after four weeks of biweekly abdominal massages along the large intestine combined with sacral adjustments, reached normal bowel function. A follow-up call thirteen years later revealed that the boy was still experiencing normal bowel movements.²⁹⁸

After close to two decades of promising case and small group studies, Lämås et al. (2009) were the first to conduct a full scale controlled clinical trial, using block

randomization to allocate sixty volunteers with a mean age of sixty-four into an intervention and a control group. After one week of baseline, the intervention group received a combination of a hand and abdominal massage, eight and seven minutes respectively, five days a week for a total of eight weeks. The control group continued with their regular routine of bowel care. There was no follow-up period observed. The authors used two validated questionnaires to collect information, namely the Gastrointestinal Symptom Rating Scale and the Bristol scale. A clinically significant increase in the number of bowel movements as well as a clinically significant decrease in the severity of symptoms were reported for the intervention group, albeit no decrease in the use of laxatives taken. Psychological effects or personal feedback were not included in the study. This European trial, even though it failed to observe a follow-up period, was well designed and presented.²⁹⁹

The most recent trial was published by McClurg et al. (2011), who designed a controlled and randomized feasibility study with thirty adults suffering from multiple sclerosis and constipation. A four-week massage protocol containing circular stroking, effleurage, palmar kneading, and vibration was taught to the participants of the intervention group and their care takers. Weekly visits by a clinician assured treatment fidelity. A four-week follow-up period was observed. The intervention group showed an improvement in constipation symptoms as measured by the Constipation Scoring System and the Neurogenic Bowel Dysfunction Score.³⁰⁰

The presented studies varied greatly in the length of individual abdominal massage sessions (ten minutes to twenty minutes), the frequency of application (three times a week to daily), and the overall duration of the intervention (one week to thirteen

weeks). Massage techniques consistently used circular motions along the path of the large intestine, from the cecum to the sigmoid colon, with palmar kneading and vibration added to the protocol by McClurg et al. The massage was administered by trained nurses, care-givers, health care practitioners, or the patients themselves. The applied pressure varied between the different research studies as some used gentle, others firm strokes.

Benefits of Abdominal Massage

A recent research review by McClurg et al. (2011) evaluated case studies, small group studies, and randomized controlled trials published in Western peer reviewed journals on abdominal massage for the treatment of constipation.³⁰¹ Although most studies did not reach statistical significance, the initial study results on the effects of abdominal massage in the treatment of constipation were reported to consistently show a positive trend towards increased frequency and ease of bowel movements, improved stool consistency, and reduced symptoms of flatulence, bloating, abdominal pain, and fecal incontinence.³⁰² The study results regarding stool transit times were mixed. The manual stimulation of peristalsis and the increase of intra-abdominal pressure, which in turn may encourage rectal loading, have been thought to be partly responsible for the reported benefits of abdominal massage.³⁰³ Study participants generally found abdominal massage pleasant to receive, and a promising trend toward increased self-esteem, well-being, and relaxation was noted in some patients. Studies unanimously proclaimed abdominal massage to be a safe intervention with no known related adverse effects. Abdominal massage is easily administered by professionals and patients alike.

The Practice of Abdominal Massage

Abdominal massage is designed to address the superficial muscular layer, the connective tissue surrounding and connecting the organs, and the organ functions themselves. At its best, abdominal massage starts with deep breathing.

Abdominal Breathing

Abdominal breathing massages the abdomen from the inside out. By filling the lower lobes of the lungs with air and allowing the abdomen and the chest to expand during inhalation, the diaphragm is encouraged to move in a downward movement and internally massage the internal organs.³⁰⁴ Additional benefits of abdominal breathing include improved circulation and oxygenation, and a shift within the nervous system from sympathetic arousal to parasympathetic relaxation.³⁰⁵ The ensuing stimulation of the vagus nerve in turn enhances digestion and elimination.³⁰⁶

On an emotional level, deep abdominal breathing has been found to potentially grant access to emotional patterns held within the body.³⁰⁷ According to Reichian trained therapist, teacher, and author John Pierrakos, unresolved emotions, memories, and trauma might be held in the body as restrictions, tensions, and armor, which eventually may lead to stagnation, pain, and disease.³⁰⁸ Concurrently, Chinese medical theory suggests that lasting emotional imbalances may become a cause of distress in the corresponding organ system; ongoing fear is thought to impact the kidneys, anger the liver, and grief the lungs and large intestine.³⁰⁹ A research report by Ekerholt and Bergland proposed that people tend to breathe according to the way they feel, not fully touching upon restricted areas in order to avoid feeling and remembering.³¹⁰ Deep diaphragmatic breathing therefore may

provide an opportunity to consciously access and ultimately transform emotional patterns held within the body.³¹¹

The Art of Abdominal Massage

Abdominal massage itself is performed on the area between the ribcage and the pelvic bones, a highly vulnerable area of the body. As such, the quality of touch needed is one of gentle strength and non-violence. This will assure that the natural boundaries and protective layers found within the abdomen are honored and a self-protective response, usually expressed as tissue contraction or emotional shut-down, may be avoided.³¹²

The protocol used in abdominal massage is designed to reestablish free organ movement by treating adhesions of the connective tissue surrounding the organs. Jean-Pierre Barral, the founder of the osteopathic division of abdominal massage, theorized that organ restrictions can cause functional and structural problems; according to him, the functional and structural problems may be reversed by freeing the organ restrictions.³¹³ The first technique used in abdominal massage often involves a gentle pumping or kneading motion over the entire belly to reduce abdominal pressure and open the abdomen for a deeper touch.³¹⁴ Organs are then manipulated directly with techniques such as listening touch, power touch, scooping, rocking, kneading, shaking, vibrating, patting, spiraling, pumping, and waves.³¹⁵ Work along the ribcage is performed to support greater movement of the diaphragm, which in turn supports organ mobility.³¹⁶ Sessions often end with prolonged clockwise circular gliding motions along the path of the large intestine. Since the 1970s, there are two major forms of abdominal massage practiced in the United States, namely Visceral Manipulation and Chi Nei Tsang.

Western Model – Visceral Manipulation

Visceral Manipulation is the Western medical approach to abdominal massage. It has its roots in osteopathy, a modality that has been practiced in the United States since 1874.³¹⁷ A century later, French osteopath Jean-Pierre Barral developed Visceral Manipulation. Visceral Manipulation places a strong emphasis on unrestricted physiological motion of tissues and structures.³¹⁸ Massage techniques are predominantly concerned with supporting unhindered organ and tissue movement, following the principle of putting an organ under tension and then mobilizing the organ while keeping it under tension.³¹⁹ All techniques require a precise knowledge of the axis and direction of motility for each organ. Touch is gentle and light, and the work generally proceeds from the core out.³²⁰

Eastern Model – Chi Nei Tsang

The Eastern form of abdominal and organ massage is known as Chi Nei Tsang. Chi Nei Tsang can be translated as working the energy and information (chi) of the internal organs (nei tsang).³²¹ The approach of Chi Nei Tsang includes, yet goes beyond technical work to honor the belief that there is no separation between body, mind, and spirit. At its best, it is applied chi kung and thus uses chi rather than muscular force.³²² Sessions aim at strengthening the organs and supporting their free movement and alignment, while additionally endeavoring to promote detoxification, emotional balance, self-awareness, and an unhindered flow of chi.³²³

Originally a monastic practice of the Taoist White Cloud monks, this form of healing was used by monks engaged in the lower stages of training in internal alchemy to prepare the body for advanced spiritual practices.³²⁴ It disappeared in China in the 1940s with the Cultural Revolution and the new communist regime.^{325,326} Chi Nei Tsang was

introduced to the Western world in the 1970s by Taoist master Mantak Chia, who studied abdominal massage in a traditional three-year apprenticeship in Thailand with Dr. Mui Yimwattana, a White Cloud monk and healer who was able to flee China during the revolution.^{327,328}

The Abdomen as a Spiritual Center

Abdominal massage was practiced in ancient Taoist monasteries due to its ability to develop and support the energy centers located in the abdomen, known in Eastern traditions as the lower and middle dantian, hara, or the lower three chakras. Energy centers are believed to open from the bottom up; consequently, the development of the lower foundational centers is thought to be a prerequisite for spiritual growth.³²⁹ The spiritual centers in the abdomen, according to Taoist teachings, are responsible for gathering, storing, concentrating, refining, transmuting, and circulating chi.³³⁰ The cultivation of the lower centers is also thought to add to a person's vitality and ability to be deeply grounded, two necessary components of spiritual expansion.³³¹

Abdominal massage might additionally support an increased awareness of gut intuition. The wisdom of the belly can express itself as an inner knowing or as visceral sensations.³³² Scientific studies on the topic have consistently suggested a close relationship between visceral sensations and gut intuition.^{333,334} Lastly, Chinese medical theory suggests that all meridians pass through the abdomen in superficial or deep pathways, distributing chi and connecting the abdominal center with every part of the body.³³⁵ This might explain why abdominal massage is thought to have an effect on overall health and well-being.

The Practice of Abdominal Self-Massage

Since abdominal massage needs to be done repeatedly over a prolonged period of time for maximum benefits, researchers McClurg et al. indicated that it might be beneficial to teach patients how to massage their own abdomen.³³⁶ The five studies that have utilized abdominal self-massage in the past, namely studies by Richards (1998), Preece (2002), Liu et al. (2005), Harrington and Haskvitz (2006), and McClurg et al. (2011), reported positive results equal to studies using trained nurses or care-givers to administer the protocol.³³⁷ Not only is self-massage cost-effective, the studies also suggested that the learning and successful application of a massage routine encouraged personal empowerment and a sense of control in patients. Even though major benefits of therapeutic touch have been associated with the rapport and expressed caring of the therapist, the preliminary studies on abdominal self-massage illuminated the possibility that the positive effects of self-care equal the benefits of being cared for by others.

Self-Care

Self care is defined as all actions individuals engage in as part of a daily practice of maintaining health, evaluating symptoms, meeting psychological and social needs, and caring for acute and chronic ailments.³³⁸ Self-care therefore includes decisions regarding medication, diet, symptom monitoring, and choice of activities that support health and well-being.³³⁹ Due to its cost effectiveness, Departments of Health worldwide have emphasized self-care as an explicit priority when it comes to reform initiatives of primary care.³⁴⁰

As mentioned before, Western medicine has not found a cure for chronic constipation, and conventional approaches to treatment have proven only mildly

effective.³⁴¹ Individuals suffering from constipation are therefore challenged with an ongoing process of self-care management, which can include dietary restrictions; special bathroom protocols; the use of herbs, supplements, laxatives, and enemas; movement and relaxation practices; and abdominal self-massage. In order for self-care practices to be incorporated into a person's life, research has shown the importance of practical results and ease of integration.^{342,343} This often entails a process of learning about the illness, the various treatment options, and the body's responses to interventions and psychosocial factors.³⁴⁴ Self-care is thus a very active and dynamic process of trial and error.

Abdominal massage is one of many options people have to manage their constipation. It is an option that has shown great promise for symptom management. People suffering from constipation might be motivated to incorporate abdominal self-massage into their lives since it is a cost-effective, safe, and easy-to-learn modality that might prove to be an effective alternative to laxatives, enemas, and digital evacuation.

The Art of Abdominal Self-Massage

Abdominal self-massage is performed with a sense of gentle strength and an honoring of the protective layers of the body, as mentioned earlier. After establishing deep breathing, the applied techniques include pumping or kneading motions, also known as petrissage, in order to relax the abdominal wall, increase lymphatic flow, relieve bloating, and break up fecal matter. Clockwise circular strokes along the large intestine, also known as effleurage, are used to stimulate peristalsis and propel fecal matter along the large intestine. Shaking motions and scooping of the corners of the large intestine are thought to further increase peristalsis. Contraindications for the application of abdominal

massage, whether applied by a trained practitioner or the patients themselves, include active diverticulitis, active ulcers, and stomach and colon cancer.

Conclusion

Abdominal massage is starting to reclaim its former major role in the healing of constipation. Research suggests that it is more effective than other alternative modalities, such as acupuncture, herbal medicine, and dietary adjustments. It is also pronounced a safe modality with no known side-effects, therefore preferable to the use of laxatives. Preliminary research furthermore indicates no outcome difference between self-massage and massage performed by a practitioner or care-taker. Since abdominal self-massage may promote personal empowerment, self-care, and self-efficacy, further research is warranted.

Summary

The review of literature demonstrates that constipation, due to a multitude of possible causes and symptoms associated with it, is a condition not well understood. Evidence has shown the current treatment of constipation as unsatisfactory to many patients. Furthermore, a movement towards complementary and alternative medicine in certain communities can be observed. At this point, only limited research is available on the treatment of constipation with abdominal self-massage. This presented study attempts to answer three questions: Does abdominal self-massage increase the number of bowel movement? Does abdominal self-massage decrease stool symptoms? Does abdominal self-massage increase the perceived quality of life? The next chapter introduces the methodology used in the presented research study.

CHAPTER 3: RESEARCH METHODS

This chapter describes the participants of the clinical trial and the materials employed. A summary of the research design and procedures is offered as well as a description of the researcher's role and ethical considerations. The chapter concludes with details on data collection and analysis.

Participants

The research study was conducted in the greater San Francisco Bay Area, home to approximately 7.5 million people.³⁴⁵ Classes for the intervention group were offered in San Francisco, Oakland, and Marin County; recruitment efforts were focused accordingly.

Recruitment

The recruitment period lasted a total of five and a half months, from 26 March 2011 until 10 September 2011. The Principal Investigator (PI) collaborated with Bay Area health care schools, centers, and practitioners in her efforts to recruit adults suffering from mild to severe constipation. Consulting the internet for contact information, the PI sent approximately five hundred emails and letters ([see Appendix A.1](#)) to acupressure practitioners, acupuncturists, Chi Nei Tsang practitioners, chiropractors, colon hydro-therapists, gastroenterologists, herbalists, homeopaths, massage therapists, naturopaths, primary care physicians, psychotherapists, and yoga teachers. Seventy-eight health care practitioners requested additional material and were sent packages containing detailed information regarding the study ([see Appendix A.2](#) and

[Appendix A.3](#)), a class schedule ([see Appendix A.4](#)), five copies of handouts for clients ([see Appendix A.5](#)), and two flyers ([see Appendix A.6](#)). Nine health care practitioners met with the PI privately to discuss the study before agreeing to support recruitment efforts. The PI visited an additional forty-eight health care offices not previously contacted in order to introduce herself and deliver flyers and informational material.

The PI also contacted three major medical centers, six health clinics, four massage schools, three acupuncture schools, one acupressure school, and two training centers focusing on abdominal massage. Four of the centers and schools emailed information regarding the research study to their contact list of practitioners, students, and clients. The PI visited the student office of three universities and was allowed to utilize the alumni list of one university for recruitment efforts.

The PI posted a call for volunteers on her professional website and sent an announcement to her contact list asking for referrals to the research study. The PI posted weekly electronic ads on Craigslist and the Pacific Sun, and utilized the services of FullCalendar Event Promotion Services ([see Appendix A.7](#)). She also posted twice on yahoo group listings of two local cities ([see Appendix A.8](#)). Lastly, the PI hung hundreds of flyers throughout the duration of the recruitment period, using the bulletin boards of local businesses, cafés, gyms, clinics, healing and meditation centers, universities, senior centers, community centers, libraries, and street corners.

Samples

As a result of recruitment efforts, 139 people contacted the PI with an expressed interest to participate or to learn more about the research study. They were mailed a package with detailed information regarding the study, as well as the *Rome III* –

Constipation Module (Rome III), a quick diagnostic test used by the medical community and researchers to identify functional constipation and constipation-predominant IBS ([see Appendix A.9](#)). Ninety-three individuals (67 percent) returned the Rome III and all but three (97 percent) qualified according to the Rome III criteria. Qualifying individuals were sent the health intake form, demographic intake form, and two consent forms to complete the sign-up procedure ([see Appendix A.10](#)).

Inclusion Criteria

In order to be included in the study, individuals had to

- be eighteen years or older and live in the greater Bay Area;
- have a diagnosis of functional constipation or constipation-predominant IBS according to the Rome III;
- commit to attending the first two classes in abdominal self-massage, with the option of attending two additional classes;
- commit to completing three surveys at four allotted times, and a Daily Log for the ten-week study duration;
- return a signed consent form; and
- agree to their random assignment into the intervention or control group.

Exclusion Criteria

Excluded from the study were individual who

- were under the age of eighteen;
- did not meet the diagnostic criteria for functional constipation or constipation-predominant IBS according to the Rome III;
- were unable to read;

- were unable to take the pre-tests and post-tests;
- were unable to perform abdominal self-massage;
- were pregnant; and
- were suffering from stomach or colon cancer, active diverticulitis, ulcers, or dementia.

Discontinuation Criteria

Individuals were free to discontinue study participation at any time before or during the study. The PI was allowed to terminate study participation at any time should participants fail to meet inclusion criteria.

Enrollment

Two weeks prior to the official starting point of the study, the PI announced the results of block randomization to the seventy-four adults that had completed the sign-up forms at that time ([see Appendix A.11](#) and [Appendix A.12](#)). Ten participants enrolled in the study in the final two weeks of recruitment. They were assigned to the intervention group (group A) and control group (group B) in an A-B-A-B pattern at the time of completed sign-up.

Of the eighty-four adults that volunteered to participate in the research study, seventy-two people (86%) began the study in September 2011. Of the twelve people that were initially signed up yet did not start the clinical trial, four realized they were too busy to participate; two reported that their constipation had resolved naturally since the initial sign-up; one had a serious health problem that needed attending; one had an unforeseen scheduling conflict; one voiced displeasure at being randomized into the control group; and three were unresponsive.

Eight people (11 percent) were not eligible for data analysis, therefore changing the final number of participants to sixty-four. Two participants of the intervention group were dropped from the study since they missed the second class due to unforeseen scheduling conflicts. One participant left the study in week six due to stress caused by changing jobs and moving to a new home. One participant did not continue to fill out the questionnaires after the final class. Two participants of the control group decided to discontinue participation due to the time-commitment involved in filling out the forms. One participant's final mailing, which included the entire Daily Log and the last set of forms, was lost in the mail. One person was identified as an outlier and not included in the data analysis.

Demographic Information

In-depth demographic information of the participants was obtained. The following table provides detailed information on the participants included in data analysis (n=64).

Table 1. Demographic Characteristics of Participants (n=64)

	Total #	Total %	Group A #	Group A %	Group B #	Group B %
Participants	64	100%	35	54.7%	29	45.3
Age						
20-29	4	6.3%	3	8.6%	1	3.4%
30-39	16	25.0%	7	20.0%	9	31.0%
40-49	13	20.3%	6	17.1%	7	24.1%
50-59	20	31.2%	14	40.0%	6	20.7%
60-69	8	12.5%	3	8.6%	5	17.2%
70-79	3	4.7%	2	5.7%	1	3.4%
Mean	47.6		48.7		46.4	
Standard Deviation	13.3		12.9		13.7	
Gender						
Male	8	12.5%	5	14.3%	3	10.3%
Female	56	87.5%	30	85.7%	26	89.7.0%
Marital Status						
Married	23	35.9%	13	37.1%	10	34.5%
Partnered	13	20.3%	8	22.9%	5	17.2%
Single	24	37.5%	13	37.1%	11	37.9%
Divorced	3	4.7%	1	2.9%	2	6.9%
Other	1	1.6%	0	0.0%	1	3.4%
Race						
White	53	82.8%	28	80.0%	25	86.2%
Other	11	17.2%	7	20.0%	4	13.8%
Education						
More than High School	13	20.3%	5	14.3%	8	27.6%
College Graduate	51	79.7%	30	85.7%	21	72.4%
Employment						
Employed	56	87.5%	29	82.9%	27	93.1%
Unemployed	3	4.7%	3	8.6%	0	0.0%
Student	2	3.1%	2	5.7%	0	0.0%
Retired	3	4.7%	1	2.9%	2	6.9%
Income						
Less than \$20,000	14	21.9%	8	22.9%	6	20.7%
20,000 to 60,000	16	25.0%	6	17.1%	10	34.5%
Over 60,000	31	48.4%	19	54.3%	12	41.4%
N/A	3	4.7%	2	5.7%	1	3.4%
Location						
City	33	51.6%	15	42.9%	18	62.1%
Suburbs	21	32.8%	14	40.0%	7	24.1%
Small Town	10	15.6%	6	17.1%	4	13.8%

Group A = Intervention Group

Group B = Control Group

Materials

A total of five validated measures were used in this study. The *Rome III – Constipation Module* (Rome III) was used as an initial measure to screen participants for inclusion criteria. Three validated measures were used to evaluate the effects of abdominal self-massage in the treatment of adult constipation: *Patient Assessment of Constipation Symptoms* (PAC-SYM), *Patient Assessment of Constipation Quality of Life* (PAC-QOL), and the *Psychological General Well-Being Index* (PGWBI). The *Bristol Stool Form Scale* (BSF) was used as part of a daily journal to provide information on stool form.

Additional forms used in the study, designed by the PI, were a demographic intake form, an informed consent form, and a health intake form due at the initial sign-up; a Daily Log to be filled out throughout the ten-week study period, and an anecdotal reporting form to elicit subjective feedback at the end of the study.

Initial Sign-Up

In order to be included into the study, participants had to sign a consent form and fill out the Rome III diagnostic questionnaire, a demographic intake form, and a health intake form. The information gathered allowed the PI to detect patterns regarding symptoms and severity of constipation as well as possible causes.

Rome III – Constipation Module (Rome III)

The Rome III was selected since it is the basis of entry into most clinical studies investigating constipation.^{346,347} The Rome questionnaire was initially developed in 1988 in conjunction with the World Congress of Gastroenterology to provide guidelines for the diagnosis of constipation. It is mainly used for research purposes and is thought to have

limited use in clinical practice.³⁴⁸ An increasing number of experts are currently questioning the practicality of diagnosing various types of constipation since there is a significant overlap of symptoms and treatment options, with the exception of pelvic floor dysfunction.³⁴⁹ Currently in its second revision, the Rome III has been used since 2006 and is the combined work of a committee of eighty-seven international investigators representing eighteen countries.³⁵⁰ It is copyrighted by and available through the Rome Foundation, and free of charge for non-funded academic research.³⁵¹

The Rome III is a self-administered measure that contains seventeen items and takes about five minutes to complete. Three items are yes/no questions, thirteen items feature a five-grade Likert scale, and one item features a seven-grade Likert scale. Recall is three months.

The Rome III is hand-scored for a yes/no answer. In order to qualify for a diagnosis of functional constipation, patients need to have experienced, for the past three months, a minimum of two symptoms at least 25 percent of the time: straining, sense of incomplete evacuation, lumpy or hard stools, anorectal blockage, manual maneuvers to facilitate defecation, or less than three bowel movements per week. Patients also need to rarely have loose stools present without the use of laxatives and not fulfill IBS criteria.

Constipation-predominant IBS is diagnosed as (a) meeting a minimum of two symptoms at least 25 percent of the time (straining, sense of incomplete evacuation, lumpy or hard stools, anorectal blockage, manual maneuvers to facilitate defecation, or less than three bowel movements per week); and (b) experiencing abdominal pain at least two days a month (independent of menstrual bleeding) while meeting two of the following criteria: abdominal pain improves with defecation; onset of pain is associated

with a change in frequency of stool; and onset of pain is associated with a change of stool form.

Demographic Intake Form

The PI designed a demographic intake form ([see Appendix B.1](#)) to collect contact information and gain insights into age, ethnicity, relationship status, employment, educational level, and income of the participants.

Health Intake Form

The PI designed a comprehensive four-page health intake form ([see Appendix B.2](#)) to learn about the self-reported medical history of the participants, get subjective feedback on general and digestive health, and gain insights into medication and supplements used, as well as diet and lifestyle choices. The in-depth health intake form attempted to reveal patterns connected to constipation and treatment response, and to illuminate potential topics for further research.

Consent Form

Participants were asked to sign an informed consent form ([see Appendix B.3](#)) which outlined the rights of the participants and the commitments involved in partaking in the study.

Pre-Tests and Post-Tests

Three validated assessment tools were used at four different time points throughout the ten-week study. The *Psychological General Well-Being Index* (PGWBI) assesses emotional and general well-being, health, and vitality. The *Patient Assessment of Constipation* (PAC) consists of two components that were developed together to measure the patient's experience of constipation over time: The PAC-SYM measures perceived

symptom severity and the PAC-QOL measures perceived quality of life associated with constipation.³⁵²

The decisive factors in selecting these tools were:

1. Ease of use: participants were asked to fill out the surveys at home, following written instructions. The measures had to be designed for self-administration.
2. Small time commitment: participants were asked to fill out three questionnaires for a total of four times. In order to encourage completion of the study, the PI chose to select measures that could be completed in their entirety in about fifteen minutes.
3. Low risk of stress or threat of psychological harm.
4. Ease of reproduction: the three main measures were used for a total of four times by each participant and therefore had to be easily reproducible.
5. Ease of scoring.
6. Low cost to the PI.

Patient Assessment of Constipation (PAC-SYM)

The PAC-SYM was selected since it is the constipation self-report measure that, compared to other instruments, scored highest in validity, reliability, and sensitivity to detect changes.³⁵³ The PAC-SYM was developed by Frank et al. and copyrighted by Johnson & Johnson in 1997.³⁵⁴ It measures the patient's perspective of constipation symptoms, with a recall of two weeks. The authors' definition of constipation is based on the Rome II criteria.³⁵⁵ The PAC-SYM is available through the Mapi Research Trust and free of charge for non-funded academic research.³⁵⁶

The self-administered measure contains twelve items assigned to three subscales (Stool Symptoms, Rectal Symptoms, and Abdominal Symptoms) with a five-grade Likert scale and a recall of two weeks. It takes about three to five minutes to complete. Items are scored from 0 (absent) to 4 (severe). For both the subscale scores and the raw index scores, the items are summed and divided by the total number of non-missing items. A low score indicates less symptom severity.

The PAC-SYM was developed for and validated on adults 18 years and older. Internal consistency was assessed in a sample of 216 patients, 93.5 percent of which were women, with a mean age of 42 years. Frank et al. reported the Cronbach alpha coefficient for the total score as 0.89, with subscale variations from 0.80 to 0.87.³⁵⁷ Test-retest reliability in 157 stable subjects, taken two weeks apart, revealed a total score of 0.75 using Intraclass Correlation Coefficients (ICC) and 0.76 using Pearson Correlation Coefficients.³⁵⁸ In tests, the PAC-Sym also showed high clinical and concurrent validity and has thus been considered a reliable and responsive instrument for detecting changes in bowel function.³⁵⁹

Patient Assessment of Constipation Quality of Life (PAC-QOL)

The PAC-QOL measures the patients' assessment of how constipation impacts their well-being, including social, psychological, and physical functioning. The measure was developed and validated by Marquis et al. and copyrighted by Johnson & Johnson in 2001.³⁶⁰ It is available through the Mapi Research Trust and free of charge for non-funded academic research.³⁶¹

The self-administered questionnaire contains twenty-eight items assigned to four subscales (Worries and Concerns, Physical Discomfort, Psychosocial Discomfort, and

Satisfaction) with a five-grade Likert scale and a recall of two weeks. It takes about six minutes to complete. Items are scored from 0 (not at all) to 4 (all the time). The scores are summed and divided by the total number of non-missing items. The overall score is computed as the average scale scores. Therefore the subscales are given equal weight yet not the individual items. A low score indicates better perceived quality of life.

Internal consistency was assessed in a sample of 222 patients. Marquis et al. reported the Cronbach alpha coefficient for the total score as 0.93, with subscale variations from 0.81 to 0.91.³⁶² Test-retest reliability in 158 stable subjects, taken two weeks apart, revealed a total score of 0.82 using Intraclass Correlation Coefficients (ICC), with subscales ranging from 0.66 to 0.82. All subscales except the satisfaction subscale, which is below the level of reproducibility, exceeded the 0.70 criterion for reliability.³⁶³ Clinical validity was established by using ANOVA models. No significant association between PAC-QOL scale scores and patient reported number of complete evacuations in the previous week were established, yet all PAC-QOL scores were significantly associated with abdominal pain ($p < 0.001$) and ratings of constipation severity ($p < 0.05$).³⁶⁴

Psychological General Well-Being Index (PGWBI)

The PGWBI was developed by Harold Dupuy and measures a sense of subjective well-being or distress because of emotional or affective problems. It is available through the Mapi Research Trust and free of charge for non-funded academic research.³⁶⁵ The self-administered measure contains twenty-two items assigned to six mood states (Anxiety, Depressed Mood, Positive Well-Being, Self-Control, General Health, and Vitality) with a six-grade Likert scale and a recall of four weeks. It takes about six

minutes to complete. Items are scored from 0 to 5. For both the subscale scores and the raw index scores, the items are summed and divided by the number of non-missing items, the result of which is multiplied by twenty. A high score indicates a high level of perceived quality of life.

Revicki et al. suggested that the PGWBI is internally consistent with α coefficients averaging 0.92 across four earlier studies. Subscale alphas were 0.82 for Anxiety, 0.89 for Depressed Mood, 0.88 for Positive Well-Being, 0.76 for Self-Control, 0.61 for General Health, and 0.85 for Vitality.³⁶⁶ One week test-retest reliability ranged from 0.71 to 0.86. Two to six months test-retest reliability ranged from 0.50 to 0.66.

Revicki et al. found a strong evidence of validity, reviewing several cross-national studies and community-based studies. All showed significant correlation between the PGWBI and various other measures, such as the Zung Depression Inventory, Hopkins Symptom Checklist, psychosocial items, and disease-specific measures.³⁶⁷

Daily Log

Studies have shown that people are prone to recall bias and tend to overestimate their bowel habits and bowel frequency if asked to remember them in hindsight.^{368,369} The PI thus designed a Daily Log ([see Appendix B4](#)) which included the Bristol Stool Form Scale and general questions. The questionnaire was filled out daily throughout the ten-week study period and took one to two minutes to complete.

Bristol Stool Form Scale (BSF)

The BSF ([see Appendix B5](#)) was chosen as a measure in this study since the observation of stool form has been shown to reliably estimate internal transit time.^{370,371}

The BSF is a self-diagnostic chart that is designed to measure general stool appearance and consistency. It was developed by K.W. Heaton at the University of Bristol, UK.³⁷² The widely used medical aid features a seven-point visual scale. Types one and two equal hard or impacted stools (slow transit time), types three, four, and five equal normal or optimal stools (normal transit time), and types six and seven signify loose or watery stools (fast transit time). This general measure is intended to be used over time to help recognize patterns and possible changes in bowel habits. The BSF is readily available through the Rome Foundation and free of charge.

According to the International Foundation for Functional Gastrointestinal Disorders, the BSF is a “recognized, general measure of stool consistency and form.”³⁷³ Studies using the stool form scale and scintigraphy or radio-opaque markers indicate that stool form and stool consistency correspond to intestinal transit time and thus constipation.^{374,375}

General Questions

The Daily Log allowed for in-depth tracking of up to three bowel movements, including notations on completeness of bowel movements and straining during defecation. The Daily Log also recorded whether participants used an aid to educe bowel movements and allowed for notations on mood and energy levels, and the trio of fiber, water, and exercise. Changes in the daily routine, unusual stresses or illness, and additional bowel movements were reported in a section reserved for optional notes.

Voluntary Anecdotal Reporting

An anecdotal reporting form ([see Appendix B6](#)) was sent with the final set of forms, eliciting voluntary subjective feedback on the participants’ experience with

abdominal self-massage. A neutral writing suggestion was used: “Please share about your experience with abdominal self-massage – what, if anything, did you notice on a physical, emotional, mental/psychological, and spiritual level? Did it affect your life in any way, for better or worse?”

Additional Material

Additional materials used in class were a massage table, yoga mats, pillows, and blankets as needed to assure the comfort of the participants. The PI also invited participants to bring a mat and pillows for their personal comfort. The participants of the intervention group received a workbook ([see Appendix C.1](#)) outlining the abdominal self-massage protocol, and a CD ([see Appendix C.2](#)) designed to verbally guide them through the abdominal self-massage routine at home. The workbook and CD were made available to each participant of the control group after the completion of the research study.

Research Design

A quasi experimental 2x4 pre-test/post-test control group design with block randomization was employed to evaluate the efficacy of abdominal self-massage in the treatment of adult constipation and perceived quality of life. The intervention consisted of fifteen minutes of daily abdominal self-massage for the duration of four weeks. A two-week baseline and four-week follow-up period were observed.

Block Randomization

Drawn from a sample of convenience, the study included participants with mild to severe constipation. The PI theorized that the severity of constipation influenced the

scores of the dependent measure. In order to ensure group equivalence, the PI grouped participants with similar severity of constipation and characteristics into blocks of four, taking into account the results of the Rome III and the subjective information reported by participants in the health intake form and demographic intake form. After the initial process of matching, participants within each block were randomly assigned to the control and intervention group by using an online random number generator named *QuickCalcs* at graphpad.com.³⁷⁶ Ten study participants signed up last minute and were randomized according to their time of sign-up, following a simple A-B-A-B model.

Independent Variable

The independent variable employed in the research study was abdominal self-massage. Participants of the intervention group engaged in fifteen minutes of abdominal self-massage per day for the duration of four weeks. Participants of the control group received the training in abdominal self-massage after the completion of the research study.

Dependent Variable

Three dependent variables were used in this study: frequency of bowel movements, stool symptoms, and perceived quality of life. They were measured by forms described earlier in this chapter, featuring the following subscales:

- Stool Symptoms, Rectal Symptoms, and Abdominal Symptoms (PAC-SYM);
- Physical Discomfort, Psychosocial Discomfort, Worries and Concerns, and Satisfaction (PAC-QOL);
- Anxiety, Depressed Mood, Positive Well-Being, Self-Control, General Health, and Vitality (PGWBI); and

- Stool Consistency (BSF) and Frequency of Bowel Movements (Daily Log).

Procedures

In order to test the protocol and procedures, a small pilot study was conducted before carrying out a full-scale research study.

Pilot Study

In April 2011, the PI engaged in a two-week uncontrolled pilot study to test the protocol, workbook, CD, and the chosen questionnaires. Six females, age thirty-five to sixty-eight, participated in the small qualitative study. Their mean age was 51.7. The women were known to the PI and reported a history of severe constipation. The participants filled out a set of measures and charted the Daily Log for one week before attending the first of two classes in abdominal self-massage taught by the PI. The women practiced fifteen minutes of daily abdominal self-massage at home for the duration of one week, supported by a CD and workbook. They continued to fill out the Daily Log. A final set of measures was completed at the end of the week. A second class allowed the PI to gather additional feedback and verify treatment fidelity.

Five of the six participants reported positive changes in their bowel habits, such as increased frequency and less straining. Four women voiced their intention to continue with abdominal self-massage. Two women reported that it was difficult for them to touch their abdomen since it felt both vulnerable and daunting to them. Both commented that they had a tendency to work deeply and thus felt tenderness and slight discomfort after the massage. All participants reported an increase in abdominal awareness since engaging in abdominal self-massage. Lastly, the participants pointed out that the CD felt rushed at times since a lot of material was covered in fifteen minutes.

Due to the feedback on the class and class materials, the PI removed one technique from the massage protocol to allow for a slower pace. A new CD was recorded and the workbook was changed accordingly. The PI also changed the lesson plan slightly to call more attention to the vulnerability of the abdomen and to repeatedly emphasize the importance of gentle touch.

Research Study

The ten-week research study was conducted from 11 September 2011 to 20 November 2011. The intervention group engaged in four weeks of daily abdominal self-massage. In order to learn the fifteen-minute protocol, the PI offered a four-week class series to the participants, with classes commencing once a week. Class attendance was mandatory for week one and two, optional for week three and four. In order to allow for small class sizes and ease of scheduling, the PI offered a choice of five time slots at three different locations. Participants were allowed to switch between classes in the same week to support scheduling difficulties, yet most stayed with their primary group throughout the four-week duration. The following section describes the class locations and the content of the classes.

Class Locations

Classes were held in three locations: San Francisco, Oakland, and Marin County. Requirements were low rental cost, privacy, open floor plan, bathroom in close vicinity, free parking, and easy access by car and public transportation.

San Francisco: A Sunday afternoon class was offered in the Potrero Hill neighborhood of San Francisco, close to a subway station and two major freeways. There was ample free parking on the street. The large meeting room was secluded at the lower

level of a community oriented store called Sports Basement. The PI was allowed to rearrange the couches to create a comfortable open space conducive to working on the floor. The place was offered to the PI free of charge.

Oakland: A Sunday morning and a Tuesday evening class were offered at the Chi Nei Tsang Institute in Oakland. The location was close to a subway station and a major freeway. There was plenty of free parking in the neighborhood. The carpeted classroom was big enough to allow ten people to lie comfortably on the floor. The place was offered to the PI free of charge.

Marin County: A Saturday afternoon and a Monday evening class were offered in the Marin County residence of the PI. The location was easily accessed by car and public transportation, with ample free parking on the street. The carpeted meeting room was private and big enough to allow ten people to lie comfortably on the floor.

The PI arrived thirty minutes before the start of each class to prepare the teaching space, ground and center herself, and greet early arrivals. The PI laid out pillows and blankets, water and glasses, a box of tissues, three anatomy books displaying the digestive system, and a little book named “What’s Your Poo Telling You?” as an amusing ice-breaker.^{377,378} A small digital clock was placed discretely to allow the PI to proceed within the same chosen time-line in all classes. The PI recorded attendance at the beginning of class.

Intervention Group: Abdominal Self-Massage

Participants were asked to wear comfortable clothing and bring a yoga mat as well as pillows and blankets as needed for their physical comfort. The PI provided additional mats, pillows, and blankets. There were five to ten participants signed up in

each class. All classes were taught by the PI, who has credentials as an advanced practitioner and instructor-in-training of abdominal and organ massage. Participants received reminder emails that included directions before each class ([see Appendix A.14](#)).

Class - Week One (mandatory)

Opening Circle

[0-10 minutes] The PI started the class by calling the participating into a circle. She offered a brief welcome and introduced herself. The participants were asked to introduce themselves, share about themselves if desired, and address any questions or concerns they might have.

Demo and Practice: Breathing and Cat's Paws

[11 minutes to 18 minutes] The PI invited a volunteer on the massage table and taught the body position best suited for abdominal self-massage. She then explained the mechanics of deep abdominal breathing, and modeled the first hands-on technique, cat's paws ([see Appendix C1](#)). For each segment, the PI detailed how it related to constipation.

[19 minutes to 28 minutes] The participants laid on their yoga mats and the PI led them through the protocol of abdominal breathing and cat's paws.

Demo and Practice: Scooping the Four Corners

[29 minutes to 36 minutes] The PI invited a volunteer on the massage table and taught scooping the four corners ([see Appendix C1](#)), explaining the connection to constipation and the potential benefits.

[37 minutes to 46 minutes] The participants laid on their yoga mats and the PI led them through the protocol of scooping the corners.

Demo and Practice: Large Intestine Work and Final Rest

[47 minutes to 53 minutes] The PI invited a volunteer on the massage table and taught the massage techniques for work on the large intestine ([see Appendix C1](#)), explaining the connection to constipation and the potential benefits. The demo was concluded by explaining the benefits of resting at the end of the massage sequence.

[54 minutes to 64 minutes] The participants laid on their yoga mats and the PI led them through the protocol of work on the large intestine before allowing time for the final resting period.

Practice: Entire Massage Protocol with CD

[65 minutes to 79 minutes] Participants did one complete fifteen-minute routine of abdominal self-massage, listening to and following along with the recorded CD ([see Appendix C2](#)).

Closing Circle

[80 minutes to 90 minutes] The PI called the participants into a closing circle. The participants were encouraged to ask any last questions and were invited to share how they felt after engaging in abdominal massage. Before parting, the PI gave each participant a copy of the abdominal self-massage workbook ([see Appendix C1](#)) and CD ([see Appendix C2](#)) designed to guide them through the protocol of abdominal self-massage at home.

Class - Week Two (mandatory)

Opening Circle

[0-15 minutes] The PI started the class by calling the participating into a circle and, after a brief welcome, invited them to ask questions and share their experience with engaging in daily abdominal self-massage at home.

Demo and Discussion: Abdominal Massage Protocol

[16 minutes to 29 minutes] The PI invited a volunteer on the massage table and went over the entire massage protocol while discussing questions asked by participants.

Practice: Abdominal Massage Protocol

[30 minutes to 79 minutes] Participants laid on their yoga mats. The PI guided participants through a fifty-minute routine of abdominal self-massage, correcting hand positions and techniques as needed. While leading through the massage protocol, the PI continued teaching participants about the functions of the internal organs ([see Appendix C.3](#)).

Closing Circle

[80 minutes to 90 minutes] The PI called participants into a closing circle and invited final comments and questions.

Class - Week Three (optional)

Opening Circle

[0-15 minutes] An opening circle allowed participants to share their experience with abdominal self-massage and address any questions they might have.

Discussion: Abdominal Massage and Chinese Medicine

[16 minutes to 29 minutes] The PI introduced the concept of Chinese medical theory and the connections of the five elements to different areas in the abdomen.

Practice: Abdominal Massage Protocol

[30 minutes to 79 minutes] Participants laid on their yoga mats. The PI guided participants through a fifty-minute routine of abdominal self-massage. Concurrently, the PI continued talking about the elements that corresponded to the area of the abdomen that was worked on ([Appendix C.4](#)).

Closing Circle

[80 minutes to 90 minutes] The PI called the participants into a closing circle and invited final comments and questions.

Class - Week Four (optional)

Opening Circle

[0-15 minutes] An opening circle allowed participants to relate their experience with abdominal self-massage and address any questions they might have.

Discussion: Abdominal Massage and Spirituality

[16 minutes to 29 minutes] The PI introduced the concept of energy centers located in the abdomen.

Practice: Abdominal Massage Protocol

[30 minutes to 79 minutes] Participants laid on their yoga mats. The PI guided participants through a fifty-minute routine of abdominal self-massage while talking about the spiritual centers located in the abdomen ([Appendix C.5](#)).

Closing Circle

[80 minutes to 90 minutes] The PI called the participants into a closing circle, expressed gratitude for their commitment to abdominal self-massage and the research study, and invited final comments and questions.

Control Group: Living Life as Usual

Participants in the control group were asked to continue with their regular routine of bowel care. They filled out the questionnaires and the Daily Log, and received their training in abdominal self-massage in January and February 2012.

The Researcher's Role

The PI had full responsibility for the research study, from the creation of the initial idea to the completion of a doctoral research thesis. Tasks included the selection of validated forms; design of additional forms, classes, and class materials; recruitment, communication with and support of research participants; management of schedules and time-lines; collection, entry, and analysis of data; and the final writing of the research study. The PI also taught the intervention protocol. The PI is a certified and licensed massage therapist with fourteen years of experience in the field. She is a certified Advanced Practitioner of Chi Nei Tsang, an Asian form of abdominal and organ massage, and an instructor-in-training with the Chi Nei Tsang Institute in Oakland. As thus, the PI had a personal interest in the outcome of the study.

The PI had a team of assistants to help with some of the specialized tasks:

- John Greiner, spouse and IT expert, helped with the creation of electronic questionnaires in Adobe format and provided computer support to the PI and study participants. Out of twenty-seven people opting to work with electronic forms, six people requested IT support.

- Nancy Avitable, statistician, analyzed the quantitative data.

Ethical Considerations

There were no serious known risks associated with participation in the four-week intervention, nor were there known risks involved in completing the questionnaires. The research study itself was approved by the Internal Review Board of Holos University.³⁷⁹

In abdominal massage, the internal organs of digestion and elimination are manipulated. Tension and stagnant build-up of waste products may contribute to abdominal tenderness.³⁸⁰ Furthermore, many physiologists believe that emotions are stored in the body and especially in the viscera.³⁸¹ Abdominal massage therefore may lead to an increased awareness of emotions, which some people may find uncomfortable. Since the participants engaged in self-massage and were thus able to modify the pressure and intensity according to personal comfort levels, the risks of abdominal massage were extremely minor. Possible risks included disappointed expectations, minor detoxification effects such as slight nausea or minor abdominal pain, and a more acute sense of held emotional charges. The PI talked about the risk of minor side-effects in the consent form ([see Appendix B.3](#)) and in class. She repeatedly encouraged participants to be present with and breathe gently into tender areas rather than using physical force or attempting to “work it out.” Studies investigating abdominal massage, both self-massage and massage performed by trained practitioners, indicated that there were no negative side-effects associated with abdominal massage.³⁸² The PI allowed for physical limitation by offering participants, as needed, chairs for the check-in and closing circles, a massage table to work on, and pillows to prop up knees and hips. The PI continued to inquire about comfort levels throughout each class.

Since active inflammatory conditions might be worsened by abdominal massage, they were listed as exclusion criteria. Pregnancy was added to the exclusion criteria as a safety precaution. All participants were free to leave the research study at any time. A few participants reported discomfort after engaging in abdominal self-massage, which stopped once the applied pressure was reduced.

Since some study participants had been using laxatives, herbal medicine, supplements, enemas, or colonics for prolonged periods of time to support bowel movements and were unable to comfortably function without, the PI did not request discontinuation of bowel aids throughout the ten-week study. Nonetheless, a notation of usage bowel aids, such as laxatives, enemas, suppositories, digital evacuation, herbs, and supplements, was requested. This policy followed the example of other research studies on abdominal massage for the treatment of constipation.

Data Collection

The research study employed a Daily Log that was filled out throughout the ten-week study period as well as a set of three measures that was collected at four points throughout the study. Study participants received the first set of forms week one and week three to create a baseline. The post-test measures were collected immediately after the completion of the four week intervention protocol and once again four weeks after that, at the end of the tenth week of the research study.

Table 2. Data Collection Points

	Week 1	Week 3	Week 3-6	Week 7	Week 10
Group A	O ₁	O ₂	X	O ₃	O ₄
Group B	O ₁	O ₂		O ₃	O ₄

O = Data Collection: Completion of PAC-SYM, PAC-QOL, and PGWBI
X = Intervention: Abdominal Self-Massage, fifteen minutes a day for four weeks
Group A = Intervention Group
Group B = Control Group

Participants were given a choice of filling out questionnaires via mail or the internet. Numerous studies comparing response rate and response content in paper and pencil versus electronic measures have found no significant differences between the two data collection methods.^{383,384,385,386,387} In 2004, Kaplowitz et al. conducted a research study on mixed-mode strategies at Michigan State University with 19,890 participants and established equivalence in response rates between the mail and internet groups.³⁸⁸

Out of sixty-four participants, twenty-seven opted for the electronic version. The remaining thirty-seven participants preferred the paper and pencil version of the measures. Participants who opted for mailings received the printed questionnaires, together with a self-addressed and stamped envelope for easy return of the forms, at each of the four data collection points. Participants of the control and the intervention group completed the tests on the same schedule. Twenty-four participants (68 percent) of the intervention group completed an optional anecdotal reporting form at the end of the ten-week research study.

Verification

The PI collected all data via email or return mail. For electronic forms, a numerical code was added, names erased as needed to allow for privacy, and the files stored on the PI's local computer as well as in a password protected remote offsite backup. Paper and pen forms were entered into electronic format by hand. The Daily Log was entered into an Excel spreadsheet. All documents were re-checked for accuracy

after entering, and a few additional spot checks were performed after the final data entry. Mailed forms were boxed securely at the home of the PI for long-term storage. Once all data was entered, it was imported into Excel spreadsheets, formatted, and sent to statistician Nanci Avitable for analysis.

Data Analysis

Data was analyzed using SPSS Version 16. Descriptive statistics were used to summarize the demographic and health characteristics of the study participants. The two-way repeated measures ANOVA was used for data analysis of the standardized pre-tests and post-tests and the Daily Log. The following chapter describes the research findings.

CHAPTER 4: RESEARCH FINDINGS

The presented research study was conducted to examine the validity and clinical usefulness of abdominal self-massage in relation to frequency of bowel movements, stool symptoms, and perceived quality of life in adults suffering from constipation. This chapter presents the statistical tests used and reports the results of the analyses.

Outliers

An outlier analysis was undertaken prior to the analyses of the main dependent measures. Outliers are participants whose data show unusually large or unusually small value compared to the rest of the participants. They were identified by checking frequency distributions, normality plots, and histograms as the data were examined for normality. Once identified, they were checked for coding errors. Three of the four outliers showed valid data and simply represented a small segment of the population suffering from severe constipation symptoms. One outlier, a participant of the control group, was dropped from the data analysis since there was consistently no acknowledgement of constipation symptoms or compromised quality of life in the dependent measures. Data were thus analyzed for an intervention group of thirty-five participants and a control group of twenty-nine participants. The demographic description of the participants is presented in chapter three.

Data Analysis

The following section describes the quantitative analysis of the three main measures and the Daily Log. Groups were deemed equal regarding age, gender,

ethnicity, education, income, and constipation symptoms. Constipation symptoms include a diagnosis of functional constipation and IBS-constipation dominant according to ROME III, duration and severity of constipation, and the use of elimination aids such as laxatives, herbal medicine, supplements, enemas, and suppositories.

A two-way repeated measures analysis of variance (ANOVA) was used to analyze between-groups differences and within-group differences. The interaction effect was revealed in the form of the f-ratio, which compared variance between conditions with variance within conditions. The alpha level of .05 was used to test the null hypothesis. The chosen level suggests that the probability of a type one error is five out of one hundred.

Main Measures

Three main measures provided quantitative data. Data were collected at four time points, which included two pre-tests, one post-test, and one follow-up test. All data were complete for the PAC-SYM and PGWBI. Individual data points were missing for the PAC-QOL, which were dealt with according to the scoring procedures outlined in chapter three.

Baseline Adjustment

In the initial data analysis, the results of the second pre-test showed a marked improvement in both groups. This might be attributed to the participants' journaling of their bowel symptoms and life-style habits in the Daily Log, which can be qualified as an intervention. Additionally, rather than relying on memory, study participants answered with more knowledge regarding their bowel habits and frequency, which had a notable affect on the scores in both groups. In order to start with an accurate representation, the

first of the two baseline tests was dropped and only the remaining three data collection points were used for analysis. The schedule and procedures for data collection are outlined in chapter three.

Patient Assessment of Constipation Symptoms (PAC-SYM)

PAC SYM scores range from 0 to 4. The three subscales are Rectal Symptoms, Abdominal Symptoms, and Stool Symptoms. The subscale Rectal Symptoms was dropped since both groups were at the low end of the symptom scale and showed no variability in the scores. Of the two remaining subscales, the subscale Abdominal Symptoms reached statistical significance ($p \leq .01$). The subscale Stool Symptoms did not reach statistical significance.

Table 3. PAC-SYM: Group by Time Means and Standard Deviations

		Intervention (n=35) Mean (SD)	Control (n=29) Mean (SD)	F	p
Abdominal Symptoms	T ₁	1.26 (0.75)	1.09 (0.65)	5.21	.009
	T ₂	0.91 (0.63)	0.97 (0.75)		
	T ₃	0.82 (0.69)	1.11 (0.74)		
Stool Symptoms	T ₁	1.86 (0.63)	1.77 (0.56)	2.50	.094
	T ₂	1.43 (0.69)	1.56 (0.74)		
	T ₃	1.23 (0.67)	1.53 (0.59)		

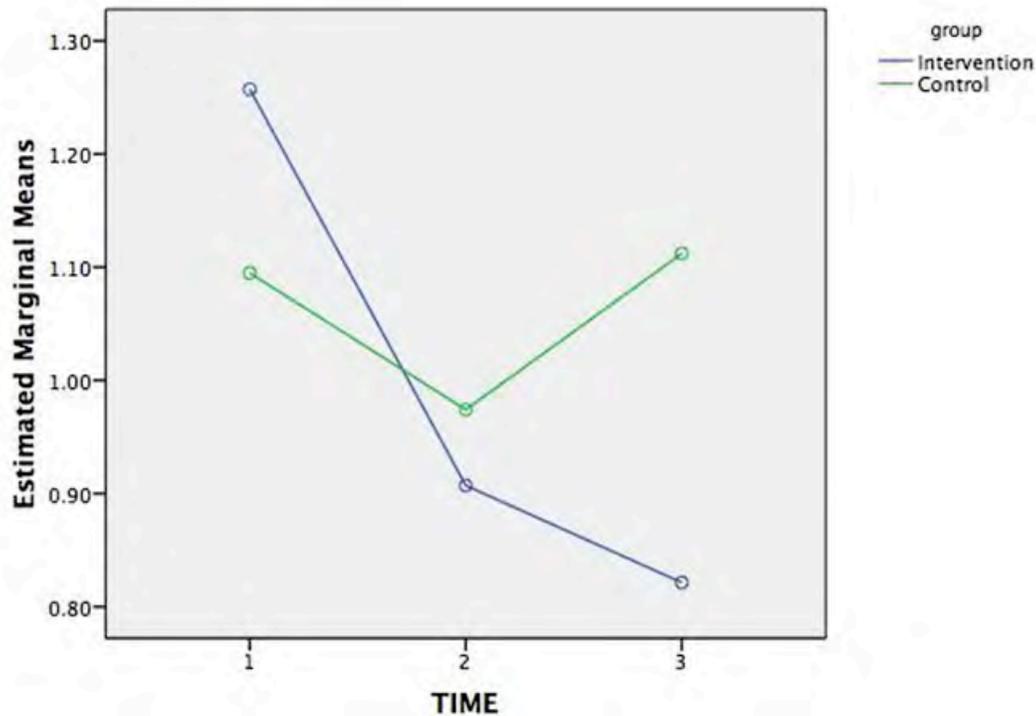


Figure 1. PAC-SYM: Abdominal Symptoms

The graph illustrates the PAC-SYM reading on the subscale Abdominal Symptoms between the intervention group and the control group across three time points. A lower score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a statistically significant interaction effect ($F_{(1,75)}=5.211, p=.009$). No statistically significant interaction effect was observed between groups.

Patient Assessment of Constipation Quality of Life (PAC-QOL)

PAC-QOL scores range from 0 to 4. The four subscales are Physical Discomfort, Psychosocial Discomfort, Worries and Concern, and Satisfaction. The Total Score of the PAC-QOL reached statistical significance ($p \leq .01$), as did the subscales Worries and Concerns ($p \leq .01$) and Satisfaction ($p \leq .05$). The subscales Physical Discomfort and Psychosocial Discomfort did not reach statistical significance.

Table 4. PAC-QOL: Group by Time Means and Standard Deviations

		Intervention (n=35) Mean (SD)	Control (n=29) Mean (SD)	F	p
Physical Discomfort	T ₁	1.54 (0.71)	1.43 (0.65)	2.59	.079
	T ₂	1.16 (0.81)	1.08 (0.74)		
	T ₃	0.85 (0.76)	1.09 (0.74)		
Psychosocial Discomfort	T ₁	1.12 (0.83)	0.82 (0.58)	2.60	.078
	T ₂	0.82 (0.76)	0.73 (0.56)		
	T ₃	0.73 (0.79)	0.69 (0.58)		
Worries and Concerns	T ₁	1.56 (0.87)	1.31 (0.73)	5.03	.010
	T ₂	1.12 (0.85)	1.02 (0.75)		
	T ₃	0.86 (0.79)	1.13 (0.83)		
Satisfaction	T ₁	2.62 (0.91)	2.68 (0.75)	4.30	.016
	T ₂	2.17 (1.04)	2.61 (0.86)		
	T ₃	1.74 (1.03)	2.48 (0.85)		
Total Score	T ₁	1.71 (0.66)	1.56 (0.53)	5.28	.006
	T ₂	1.32 (0.72)	1.36 (0.61)		
	T ₃	1.05 (0.75)	1.35 (0.63)		

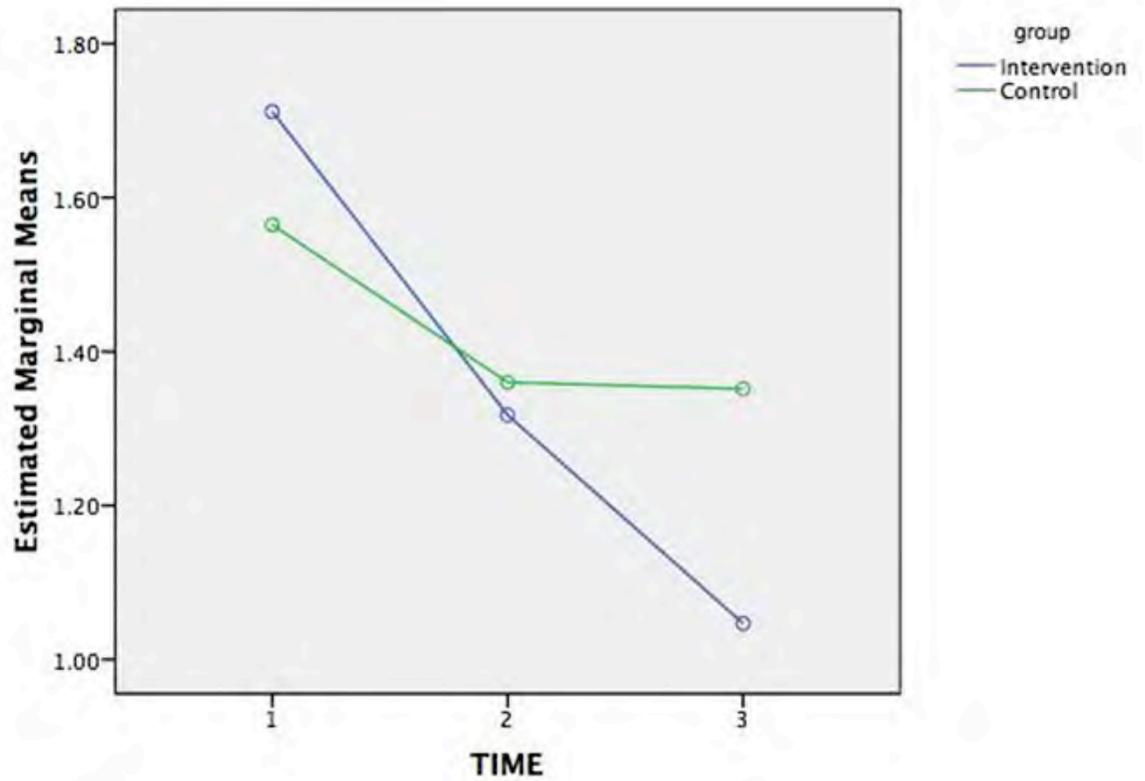


Figure 2. PAC-QOL: Total Score

The graph illustrates the PAC-QOL reading on the Total Score between the intervention group and the control group across three time points. A lower score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a statistically significant interaction effect ($F(0.88)=5.280, p=.006$). No statistically significant interaction effect was observed between groups.

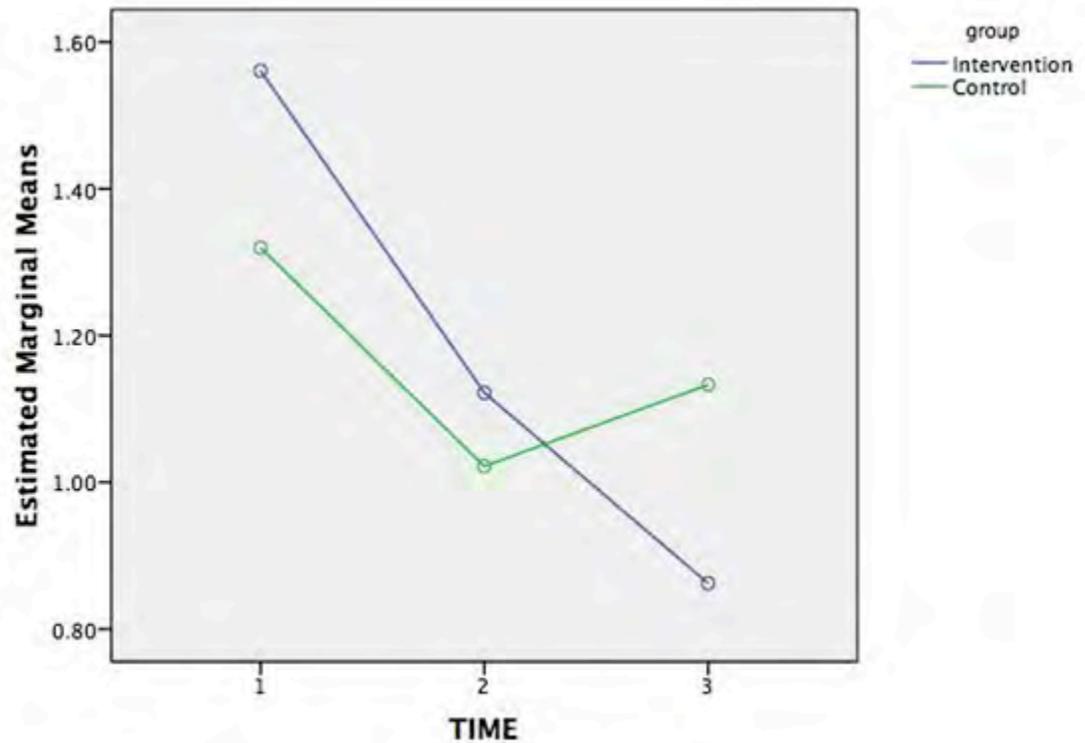


Figure 3. PAC-QOL: Worries and Concerns

The graph illustrates the PAC-QOL reading on the subscale Worries and Concern between the intervention group and the control group across three time points. A lower score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a statistically significant interaction effect ($F_{(1,84)}=5.031, p=.010$). No statistically significant interaction effect was observed between groups.

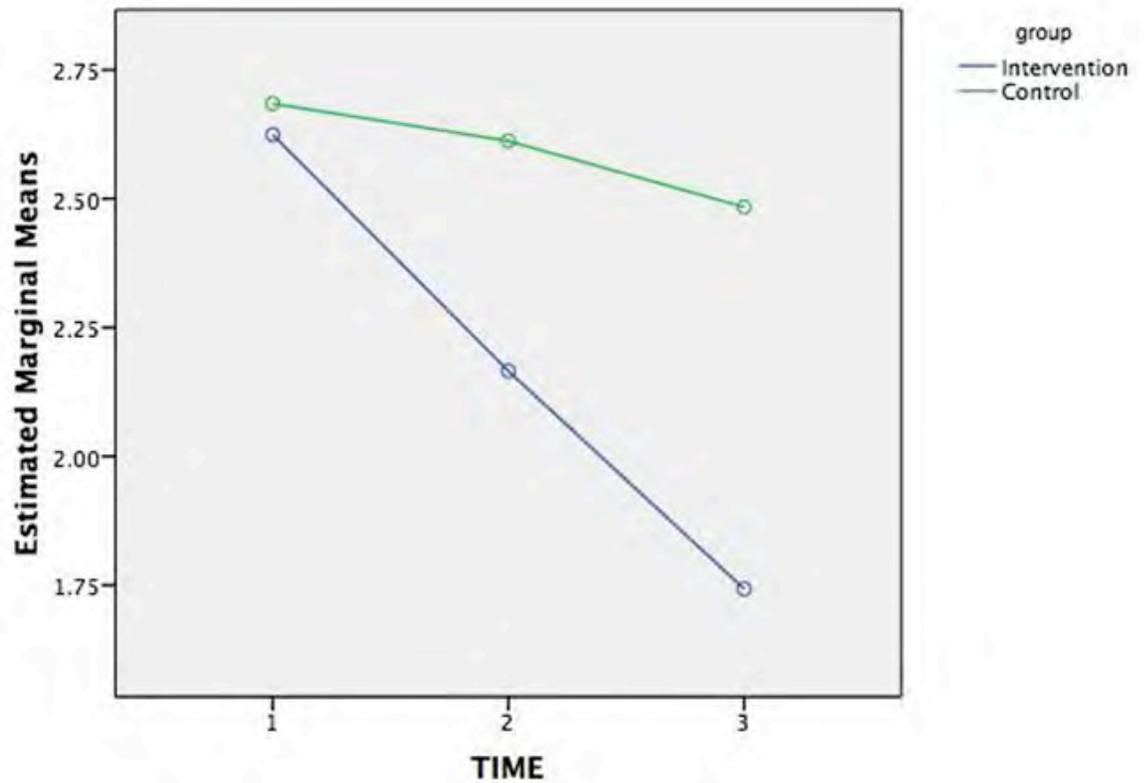


Figure 4. PAC-QOL: Satisfaction

The Graph illustrates the PAC-QOL reading on the subscale Satisfaction between the intervention group and the control group across three time points. A lower score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a statistically significant interaction effect ($F_{(2,00)}=4.298$, $p=.016$). A statistically significant interaction effect between groups was observed at the follow-up test ($p=.003$).

Psychological General Well-Being Index (PGWBI)

The PGWBI scores range from 0 to 110 with higher scores indicating an increase in perceived well-being. The six subscales are Anxiety, Depressed Mood, Positive Well-Being, Self-Control, General Health, and Vitality. The Total Score of the PGWBI reached statistical significance ($p \leq .05$), as did the subscales Self-Control ($p \leq .05$) and Vitality ($p \leq .05$). The subscales Anxiety, Depressed Mood, Positive Well-Being, and General Health did not reach statistical significance.

Table 5. PGWBI: Group by Time Means and Standard Deviations

		Intervention (n=35) Mean (SD)	Control (n=29) Mean (SD)	F	p
Anxiety	T ₁	55.43 (17.65)	54.48 (20.93)	2.35	.100
	T ₂	64.80 (17.38)	59.17 (22.49)		
	T ₃	67.31 (15.69)	57.79 (23.09)		
Depressed Mood	T ₁	78.10 (15.47)	79.77 (13.03)	1.27	.284
	T ₂	81.90 (16.93)	81.15 (12.22)		
	T ₃	83.43 (11.70)	80.46 (14.02)		
Positive Well-Being	T ₁	60.00 (18.55)	56.21 (16.77)	1.32	.270
	T ₂	63.71 (16.37)	57.41 (18.50)		
	T ₃	65.57 (15.80)	56.90 (21.15)		
Self-Control	T ₁	72.76 (19.50)	72.18 (18.61)	3.70	.028
	T ₂	78.29 (14.03)	77.24 (14.53)		
	T ₃	81.90 (14.60)	72.41 (19.74)		
General Health	T ₁	57.71 (16.08)	59.78 (19.88)	1.94	.148
	T ₂	67.81 (15.38)	64.60 (17.19)		
	T ₃	68.57 (14.51)	64.60 (18.86)		
Vitality	T ₁	56.00 (16.31)	52.93 (19.53)	4.69	.011
	T ₂	62.43 (15.36)	55.34 (19.59)		
	T ₃	63.86 (14.56)	52.07 (20.02)		
Total Score	T ₁	62.13 (13.80)	61.10 (14.80)	4.21	.017
	T ₂	68.75 (13.47)	64.36 (13.85)		
	T ₃	70.72 (13.40)	62.20 (16.43)		

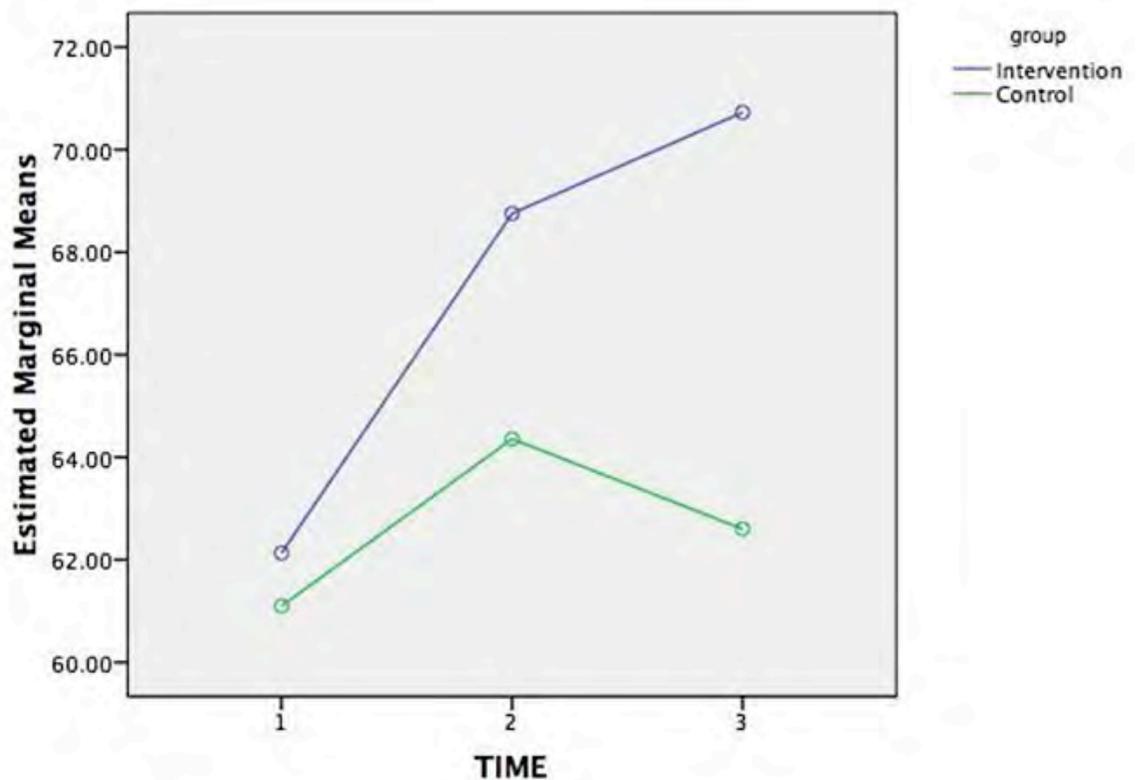


Figure 5. PGBWI: Total Score

The Graph illustrates the PGWBI reading on the Total Score between the intervention group and the control group across three time points. A higher score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a statistically significant interaction effect ($F(2.00)=4.210$, $p=.017$). A statistically significant interaction effect between groups was observed at the follow-up test ($p=.028$).

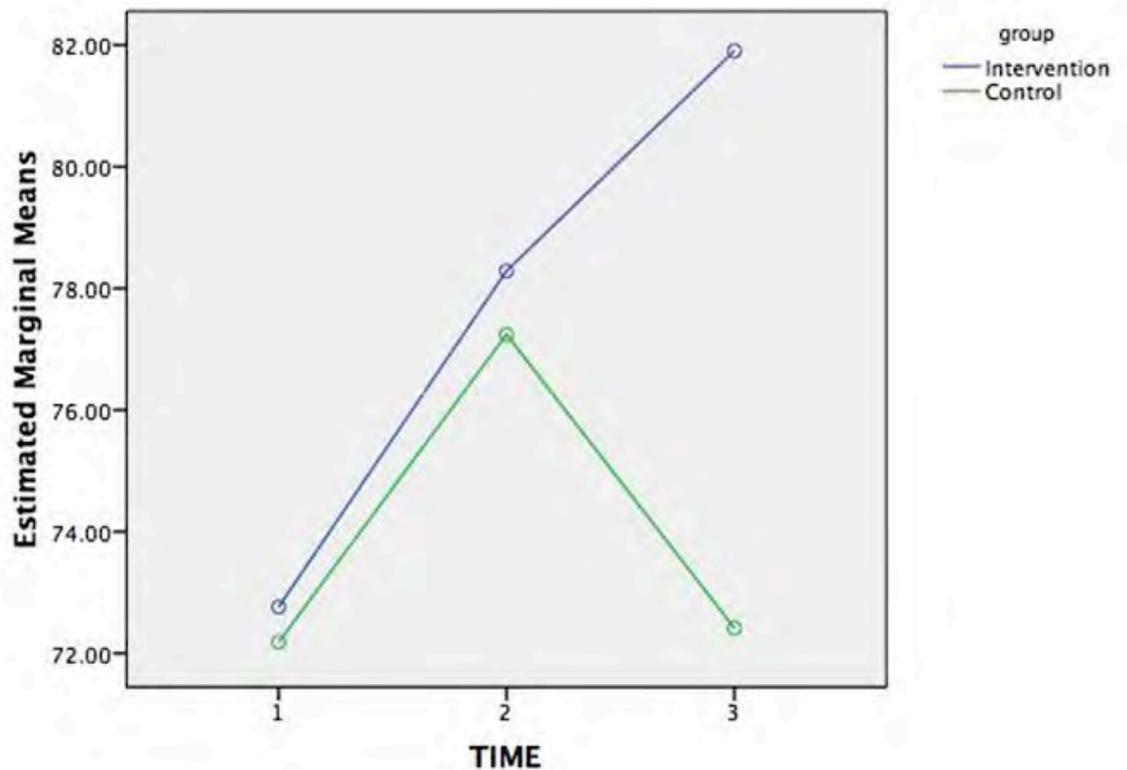


Figure 6. PGWBI: Self-Control

The Graph illustrates the PGWBI reading on the subscale Self-Control between the intervention group and the control group across three time points. A higher score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a Anxiety, Depressed Mood, Positive Well-Being, Self-Control, General Health significant interaction effect ($F_{(2,00)}=3.696, p=.028$). A statistically significant interaction effect between groups was observed at the follow-up test ($p=.031$).

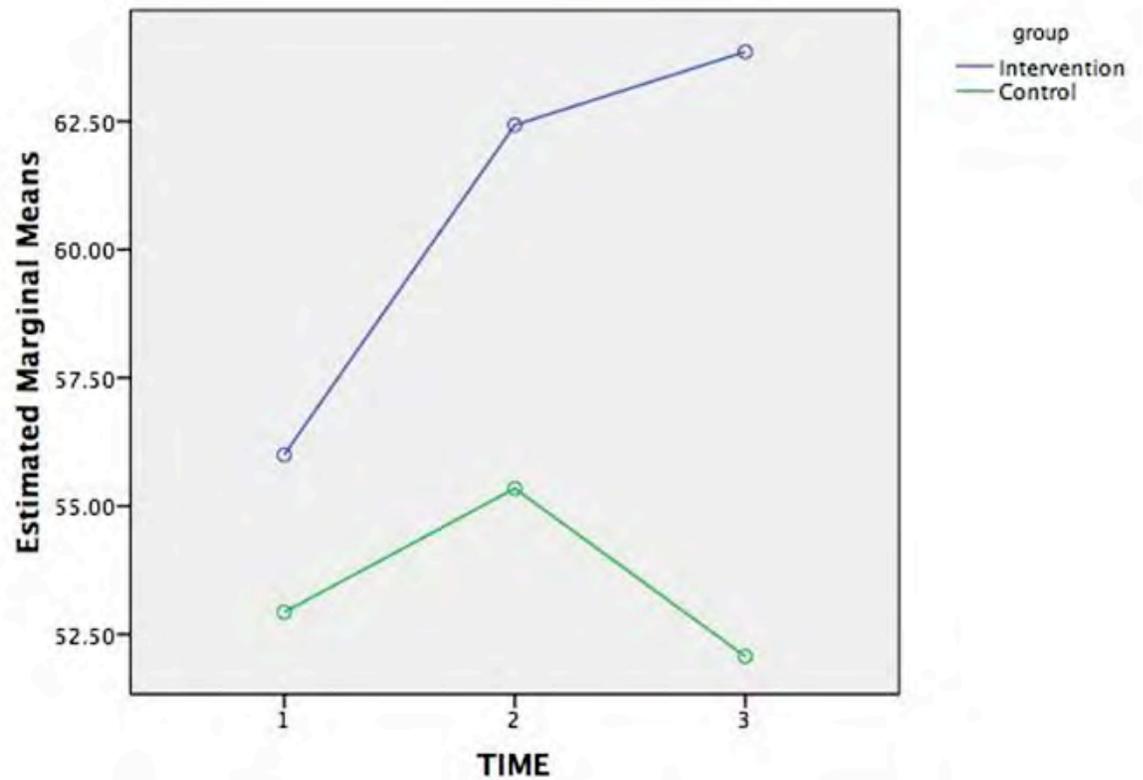


Figure 7. PGBWI: Vitality

The Graph illustrates the PGWBI reading on the subscale Vitality between the intervention group and the control group across three time points. A higher score represents diminished symptoms severity. The time points are each four weeks apart. Time 1 indicates the baseline scores (pre-test two), time 2 the scores collected after the four-week intervention protocol (post-test), and time 3 depicts the scores collected after a four-week follow-up period (follow-up test). The F test indicates that there is a statistically significant interaction effect ($F_{(2,00)}=4.688$, $p=.011$). A statistically significant interaction effect between groups was observed at the follow-up test ($p=.008$).

Daily Log

The Daily Log collected quantitative data on frequency of bowel movements, stool consistency, stool symptoms, water and fiber intake, and time spent in exercise. An imputed mean was used for missing data points. Participant that missed more than two entries in at any given week were dropped from the data analysis, as were categories that depicted more than 25 percent of participants with missing weeks. Consequently, the sub-categories straining and completeness were dropped since 58 percent of participants marked the fields only sporadically. No statistically significant interaction effect in the frequency of bowel movements and intake of water, fiber, and laxatives were observed, as seen in the table below. A statically significant increase in water intake was observed in the control group.

Table 6. Daily Log: Group by Time Means and Standard Deviations

		Intervention (n=29)	Control (n=28)	F	p
		Mean (SD)	Mean (SD)		
Stool	T ₁	11.30 (5.04)	10.15 (5.65)	.903	.517
Frequency	T ₂	11.00 (4.70)	9.64 (4.68)		
	T ₃	11.24 (5.17)	10.29 (4.76)		
<i>(Number</i>	T ₄	10.93 (4.62)	9.46 (4.87)		
<i>of BM</i>	T ₅	11.30 (5.54)	9.50 (4.38)		
<i>per week)</i>	T ₆	10.69 (5.33)	8.93 (4.39)		
	T ₇	9.70 (4.32)	9.58 (5.48)		
	T ₈	9.93 (4.90)	9.16 (5.05)		
	T ₉	10.76 (4.53)	9.56 (5.21)		
	T ₁₀	10.82 (5.74)	9.04 (5.32)		
Normal	T ₁	55.71 (24.06)	47.61 (34.36)	1.645	.100
Bowel	T ₂	48.36 (25.63)	53.55 (35.23)		
Consistency	T ₃	54.81 (31.14)	54.93 (34.02)		
(Bristol	T ₄	54.28 (31.12)	59.58 (35.17)		
#4,5,6)	T ₅	59.80 (30.20)	56.20 (35.81)		
	T ₆	62.80 (24.83)	51.07 (36.43)		
<i>(in percent)</i>	T ₇	63.60 (24.97)	52.89 (34.71)		
	T ₈	66.43 (28.27)	54.42 (38.86)		
	T ₉	64.39 (26.66)	50.31 (35.91)		
	T ₁₀	63.55 (29.17)	59.25 (34.52)		
		Intervention (n=31)	Control (n=28)	F	p
		Mean (SD)	Mean (SD)		
Water	T ₁	49.5 (17.4)	44.9 (13.6)	3.336	.049
Intake	T ₂	48.0 (17.1)	47.0 (14.5)		
<i>(per cups)</i>	T ₃	48.7 (18.6)	49.9 (18.4)		
Fiber	T ₁	28.9 (13.4)	30.9 (16.9)	.868	.422
Intake	T ₂	30.2 (15.7)	34.5 (18.2)		
<i>(per serving)</i>	T ₃	30.8 (13.4)	34.6 (17.9)		
		Intervention (n=34)	Control (n=28)	F	p
		Mean (SD)	Mean (SD)		
Laxatives	T ₁	14.7 (31.1)	13.3 (30.8)	.443	.643
	T ₂	17.4 (34.0)	13.8 (33.8)		
<i>(in percent)</i>	T ₃	17.0 (33.9)	17.7 (37.1)		

Anecdotal Information

Qualitative data were collected from the intervention group in an effort to present a more comprehensive portrait of possible effects of abdominal self-massage. Twenty-four participants (68 percent) wrote responses to the following questions: “Please share about your experience with abdominal self-massage – what, if anything, did you notice on a physical, emotional, mental/psychological, and spiritual level? Did it affect your life in any way, for better or worse?”

Many responses conveyed a sense of empowerment, and improvements were reported in constipation symptoms as well as in other areas not measured in this study, such as insomnia, headaches, and muscular tension. A content analysis ([see Appendix B7](#)) and a complete record of responses ([see Appendix B8](#)) can be found in the appendix.

Overall Results

The three dependent measures were analyzed using a two-way repeated measures ANOVA with the alpha value set at .05. The two quality of life measures reached statistical significance, as did five out of thirteen subscale scores. The data did not support the hypotheses that abdominal self-massage significantly reduces stool symptoms and increases the frequency of bowel movements. The data supported the hypothesis that abdominal self-massage significantly improves quality of life.

CHAPTER 5: DISCUSSION, CONCLUSIONS, AND SUGGESTIONS

The purpose of the study was to determine whether abdominal self-massage increases the frequency of bowel movements, reduces stool symptoms, and improves perceived quality of life in adults with constipation. This final chapter includes a short summary of the research literature and methodology, a discussion of the study results, a portrayal of the strength and weaknesses of the presented research study, final conclusions, and a discourse on the implications for future research, clinical practice, and the field of spiritual healing.

Summary

As discussed in the literature review, constipation describes a multitude of symptoms related to stool consistency, frequency of bowel movements, and ease of defecation. Most people have experienced short-lived symptoms of constipation at one point or another in their lives, yet approximately 20 percent of people living in the Western world identify themselves as chronically constipated. It has been observed that constipation correlates with a decrease in quality of life and psychological well-being. Allopathic medicine at large has not proven successful in curing chronic constipation, and many people are looking towards alternative medicine to find relief. Prior studies on the use of abdominal massage in the treatment of constipation have turned up promising evidence, as have small preliminary studies on abdominal self-massage. This research study presents the first full-scale clinical trial to examine the efficacy of abdominal self-massage in the treatment of adult constipation and perceived quality of life.

The ten-week controlled trial used block randomization and a four-week intervention protocol of daily abdominal self-massage. Frequency of bowel movements, stool symptoms, and perceived quality of life were measured by three dependent tools at four time points. A Daily Log was kept by the participants throughout the duration of the clinical trial.

Discussion

This section discusses the findings of the study with an emphasis on the null hypotheses outlined in chapter one:

- 1) There is no increase in perceived quality of life in adults with constipation engaging in daily abdominal self-massage compared to the general population.
- 2) There is no decrease in stool symptoms in adults with constipation engaging in daily abdominal self-massage compared to the general population.
- 3) There is no increase in bowel movements in adults with constipation engaging in daily abdominal self-massage compared to the general population.

Abdominal Self-Massage and Quality of Life

Quality of life was assessed by two dependent measures: the *Patient Assessment of Constipation Quality of Life* (PAC-QOL) and the *Psychological General Well-Being Index* (PGWBI).

Patient Assessment of Constipation Quality of Life (PAC-QOL)

The PAC-QOL examines constipation-related quality of life. The total score of this measure reached statistical significance ($p \leq .01$), as did two of the four subscales, namely Worries and Concerns ($p \leq .01$) and Satisfaction ($p \leq .05$). ‘Worries and Concerns’ measures how upset, irritated, obsessed, stressed, bothered, and worried people are by

their condition. ‘Satisfaction’ examines how satisfied people are with their stool transit time and the frequency and regularity of their bowel movements.

The subscales Physical Discomfort and Psychosocial Discomfort did not reach statistical significance. ‘Physical Discomfort’ measures the extent to which people feel heavy and bloated because of constipation, and also evaluates a general sense of physical comfort. ‘Psychosocial Discomfort’ examines how people are affected by constipation when they are away from home, for instance feeling embarrassed about bathroom needs, worrying about changes to daily routines, or experiencing special dietary needs.

More than 50 percent of the study participants reported a history of over twenty years of constipation. Even though the intervention group showed a positive trend in their ratings of perception of physical and psychosocial discomfort, a four week intervention protocol might not have been long enough to (a) experience a reduction of symptoms and (b) feel confident that the old coping mechanism were no longer needed. This will be further addressed under Implications for Future Research.

Psychological General Well-Being Index (PGWBI)

The PGWBI was the other dependent tool used to examine quality of life. It assesses a general level of well-being. The total score of the PGWBI reached statistical significance ($p \leq .05$), as did two of its six subscales, specifically Self-Control ($p \leq .05$) and Vitality ($p \leq .05$). The subscale Self-Control measures emotional stability and a sense of control of one's general behavior, thoughts, and feelings. This suggests that the discipline of a daily self-care routine that supports relaxation and a deep listening within may positively influence a person's sense of self-control. ‘Vitality’ refers to the perceived level of day-to-day energy, vigor, and vitality. This result is in alignment with ancient

Eastern teachings of energy centers located within the abdomen. Deep breathing and abdominal stimulation may activate these energy centers which may increase the level of vitality within the body.

The subscales Anxiety, Depressed Mood, Positive Well-Being, and General Health did not reach statistical significance. A positive trend towards increased General Health was observed, which was confirmed by numerous anecdotal reports. A larger sample size and a longer intervention period might provide more robust results regarding general illnesses, aches, and pains. Nonetheless, the overall trend towards improvement in General Health introduces the concept that bowel health might have a positive impact on the body as a whole. This will be further addressed under Implications for Future Research.

A connection between constipation and emotions, especially regarding feelings of anxiety and depression, is already well documented in several research studies. As described in the literature review, researchers are not certain whether anxiety and depression contribute to constipation or arise as a result of constipation. In the initial health intake forms, more than half of the participants self-identified as anxious, and approximately 20 percent of the participants classified themselves as depressed. Verbal feedback throughout the class and anecdotal feedback at the end of the research study indicated that unresolved emotional issues surfaced as people engaged in abdominal self-massage. A positive trend towards reduced anxiety and depressed mood was measured by the PGWBI. A longer intervention period might allow for more emotional integration of the surfacing issues, which might further affect the subscales Anxiety and Depressed Mood and also improve the already positive scores on the subscale Positive Well-Being,

which measures the sense of happiness and satisfaction with life. This will be further addressed under Implications for Future Research.

As discussed in the literature review, the correlation between bowel conditions and quality of life is well documented. It is thus not surprising that the intervention group revealed significantly improved quality of life scores compared to the control group, both in total scores of the two quality of life measures and in individual subscale scores. These described findings suggest that the quality of life is partly determined by abdominal health and as such can improve with daily abdominal self-massage. The null hypothesis that abdominal self-massage does not increase the perceived quality of life in adults with constipation engaging in daily abdominal self-massage compared to the general population is therefore rejected.

Abdominal Self-Massage and Stool Symptoms

The *Patient Assessment of Constipation Symptoms* (PAC-SYM) was used to examine symptoms associated with constipation. The PAC-SYM consists of three subscales: Abdominal Symptoms, Rectal Symptoms, and Stool Symptoms.

Statistical significance was reached in the subscale Abdominal Symptoms ($p \leq .01$). Abdominal symptoms, such as abdominal discomfort, pain, bloating, and cramps, are often experienced by people suffering from severe constipation or constipation-predominant IBS. According to the initial diagnosis of the *Rome III – Constipation Module* (Rome III), about 70 percent of the study participants suffered from constipation-predominant IBS, thus rendering this subscale highly applicable. The research findings of the presented study suggest a statistically significant decrease in

abdominal symptoms, something that according to the existing literature has not been accomplished with the use laxatives or an increase in fiber intake.

The subscale Rectal Symptoms examines whether people experience pain, burning or bleeding during defecation. Rectal symptoms are most common in severe cases of functional constipation. Since most research participants experienced mild to moderate symptoms of constipation-predominant IBS, rectal symptoms were marked as either absent or very mild. The subscale was thus not applicable for the presented study and consequently dropped from data analysis.

No statistical significance was found in the subscale Stool Symptoms. This subscale measures stool consistency, the completeness of bowel movements, straining, and false alarm. Stool symptoms are most commonly experienced by people suffering from moderate to severe functional constipation. Since only about 30 percent of the study participants suffered from functional constipation and constipation severity was marked as mostly mild to moderate, further investigation is warranted. A research sample focusing on patients with functional constipation with at least moderate symptom severity may provide more robust results in this specific category. This will be further addressed under Implications for Future Research.

These research findings suggest that abdominal self-massage does not cause a significant decrease in stool symptoms in adults with constipation compared to the general population. The null hypothesis stating that there is no decrease in stool symptoms in adults with constipation engaging in daily abdominal self-massage compared to the general population is accepted.

Abdominal Self-massage and Frequency of Bowel Movements

No significant correlation between abdominal massage and frequency of bowel movements was found. Participants of the intervention group showed a consistent average of nine to eleven bowel movements per week. Data analyses of the Daily Log indicated a strong positive trend towards improved stool consistency. This suggests that even though the number of bowel movements did not increase, overall bowel health might have increased. An additional measurement of stool size might provide a more complete picture of bowel health. The Daily Log indicated no significant increase in fiber intake and laxative intake. The statistically significant increase in water intake in the control group did not have a significant effect on bowel health. The null hypothesis that there is no increase in bowel movements in adults with constipation engaging in daily abdominal self-massage compared to the general population is accepted.

Strengths and Shortcomings of the Presented Study

Many choices go into the design of a clinical trial. The following section analyzes the strengths and weaknesses of the presented study.

Strengths of the Presented Research Study

There are many strong points in the presented study. Areas of strengths include the research design, materials, and the intervention protocol.

Baseline Similarities: Block randomization was utilized in order to avoid selection bias and to assure equality in the treatment and control group. Randomization alone might have led to too strong of a discrepancy in severity and duration of constipation symptoms between groups.

Choice of Validated Measures and Daily Log: Three standardized instruments were used in order to adequately address the research hypotheses and increase confidence in the score and interpretation of the results. A Daily Log was used to decrease recall bias and gain detailed information on bowel movements, elimination aids, mood and energy levels, and the trio of fiber, water, and exercise.

Mixed-Mode Strategy: The choice of receiving measures via mail or the internet allowed participants to pick the medium with which they felt most comfortable. Offering electronic versions of the forms reduced the use of resources, decreased mailing costs, and assured accuracy and efficiency in data transfer.

Overall Consistency: Consistency was high throughout the study

- Even though classes were taught in multiple locations and at various days and times to allow for ease of scheduling for participants, all classes were taught by the PI following the same time line and discussion points.
- All mailings and communication with participants were handled by the PI.

Ease of Reproduction: The research study is easily reproducible. A CD and workbook provided detailed information on the protocol. The self-massage protocol was easy-to-learn and did not rely on a specific person or location.

Self-Care: Self-massage provides a practical and empowering form of treatment that avoids reliance on a trained practitioner, whose specific combination of education, experience, sensitivity, dedication, and personality may color the study outcome and may jeopardize the reproducibility of the study.

Cost-Effective: Abdominal self-massage constitutes an inexpensive form of treatment for constipation. No materials and no outside support are needed, other than the workbook and CD as described in this research study.

Shortcomings of the Presented Research Study

There are four major areas of weakness in the presented research study. Areas of concern include the materials, the intervention, the population, and the PI.

Materials

Test Sensitization: Three standardized and validated measures were administered at four different time points throughout the study. Repeated testing on the same three measures may have influenced the participants' reporting on later surveys due to familiarity with the measure, demoralization, or a need for social approval.

No Independent Verification: Due to the frequency of testing, self-report instruments were utilized. No physical measurements were taken by an independent party. The subjective nature of the measure and response bias might have weakened study results.

Baseline Measures Skewed: In addition to reporting on the three dependent measures, the participants kept a ten-week Daily Log. As mentioned before, the journal provided detailed information on bowel movements, mood and energy levels, elimination aids, and the trio of fiber, water, and exercise. Both groups showed a marked change at the second baseline test, pointing towards a difference between recall based on memory versus recall based on awareness. The baseline scores might also have been influenced by a change in life-style habits due to the increased attention to bowel health.

No Long-Term Probe for Program Survival or Benefit: It might have been helpful to have one more set of follow-up measures taken at six- and again at twelve-months after the completion of the intervention period to evaluate the long-term benefits of abdominal self-massage.

Intervention

Noncompliance: Participants engaged in the treatment protocol at home. There was no control for treatment compliance and fidelity. Participants might have engaged in self-massage only sporadically, might have found it too onerous to continue, or might have overdosed with the thought “more is better.” Even though this weakens internal validity, it is also a normal reality found in the regular practice of medicine.

Five Classes at Three Locations: Five classes were offered throughout the Bay Area, namely Marin County, Berkeley, and Oakland. Even though the basic curriculum was identical, there were slight differences in the presentation due to the individuality of the participants and the questions asked. This maximized generalizability, yet internal validity might have been strengthened by training all participants in one class.

Length of Intervention Protocol: The research study would have benefitted from an intervention protocol of eight to twelve weeks. A longer intervention period might have produced more robust results.

Population

Sample of Convenience: The participants of the study presented not a true random sample of the population but a sample of convenience. Therefore, the results of the study are not representative of the entire population.

Sample Size: The presented study featured a relatively small sample size. A larger sample size might have produced more obvious results. It also might have allowed for more definite conclusions regarding sub-groups.

Sample Diversity: The participants of the study were mostly white, female, highly educated, motivated to change their condition, interested in CAM and self-care, and solely from the Bay Area. The sample thus has little diversity in race, ethnicity, geography, gender, social class, education, motivation, and settings.

Attrition: After the initial recruitment, twelve participants did not begin the study and eight people were not included in the final data analysis. The remaining participants therefore did not represent the original sample that was recruited and randomly assigned.

Blinding: Participants were not blinded to their group assignment. Due to the nature of the intervention, a sham treatment was not available. Having an awareness of group placement, participants of the control group may have had reactions such as compensatory performance or demoralization. Participants of the intervention group may have had bias, all of which might have been reflected in the assessment forms.

Additional Aids to Elimination: Constipation can be extremely uncomfortable on a physical and emotional level for participants. Out of ethical considerations, participants of the research study were allowed to continue with their regular regime of elimination aids as considered appropriate for comfort by the individual. This included the use of laxatives, herbs, supplements, enemas, suppositories, and digital evacuation.

Personal Acquaintance: Four (6 percent) of the research participants were known to the PI. One participant was a former co-worker in a work-engagement in 2001, one

participant was a former client that the PI had seen for deep tissue sports massage three times in 2006, and two participants were co-students in a trauma workshop taken in 2008.

Principal Investigator

Blinding: An open trial was unavoidable since the PI taught the intervention protocol. The PI therefore was not blinded in regards to knowing who was in the intervention group and who was in the control group.

Researcher Bias: The PI's passion for the intervention and heartfelt interest in the participants might have provided additional bias since she was not detached from the outcome and thus might have positively biased the participants towards believing in the validity of the intervention. Even though neutrality was preserved throughout the study as much as possible, the intent of the PI might have created more positive results than might otherwise have been seen.

Conclusions

The quantitative findings of the study were mixed. The results of this research suggest that abdominal self-massage improves, at a level of statistical significance, abdominal symptoms and quality of life in adults suffering from constipation as measured by the Patient Assessment of Constipation Symptoms (PAC-SYM), Patient Assessment of Constipation Quality of Life (PAC-QOL), and the Psychological General Well-Being Index (PGWBI). There was no statistical significance regarding stool symptoms and stool frequency. However, this research adds valuable new information to the existing body of knowledge on the topic of abdominal massage by focusing on self-help. Further research on the subject is recommended to deepen the understanding on this non-pharmacological method of treating constipation.

Implications for Future Research

Sample: The sample studied lacks in diversity and is therefore not representative of the entire US population. Future research with different age groups, in other areas of the country, and with characteristics more common to the total US population will help to generalize the findings on a broader scale. Future researchers might also want to focus on subgroups disproportionately afflicted with constipation symptoms, such as people on pain medications, people with spinal cord or nervous system injuries, and people with histories of childhood abuse or eating disorders.

Symptom Severity: Enrollment in the study might have been overly inclusive as the participants reported predominantly mild to moderate constipation symptoms at baseline. Future researchers might want to include only participants with at least moderate severity at baseline in order to sustain more robust findings.

Compliance: Some participants expressed difficulties in following a daily routine of abdominal self-massage. To assure treatment compliance, it might be helpful to arrange for a supervised meeting space in which participants can arrive for daily self-massage at a time of their convenience.

Dependent Measures: As described, three dependent measures and a Daily Log were used to collect self-reported data. Both groups showed a marked change at the second baseline test, pointing towards a difference between recall based on memory and recall based on awareness. Additionally, the Daily Log might have become an intervention in itself as participants paid increased attention to their bowel health and life-style habits. Future researchers might want to start the Daily Log one week prior to the

first baseline measure. In order to avoid an unintended intervention, it might be advisable not to track diet and life-style choices.

Length of Study and Intervention Protocol: All scores in the presented study showed a continuous improvement throughout the follow-up period. Upcoming studies might want to lengthen both the intervention period and the overall study duration in order to have more robust findings.

Symptom Complex: Anecdotal data alluded to the fact abdominal massage not only decreased bowel symptoms but affected the system as a whole by decreasing headaches, insomnia, and muscular pains as well as bringing up emotional contents. Studying some of these side-effects in a long-term study might be an interesting area for further research. Rather than controlling for bowel frequency, future researchers might want to investigate a more complete picture of bowel health by taking into account abdominal and stool symptoms, stool size, and stool consistency.

Implications for Clinical Practice

The standard Western treatment approach to constipation is the prescription of laxatives, which tends to suppress symptoms rather than offer a cure. The presented study suggests abdominal self-massage as a viable alternative to the use of laxatives for adults suffering from functional constipation and constipation-predominant IBS. Unlike most CAM modalities, which necessitate the aid of a trained practitioner and substantial out-of-pocket costs for the patient, abdominal self-massage is an easy-to-learn, effective, and low-cost solution for improving constipation symptoms. Due to negative associations connected to constipation, many people feel embarrassed talking about their condition and might thus be reluctant to seek help. A self-care approach to constipation

therefore not only saves health care costs and valuable resources but may also reduce discomfort. Medical practitioners interested in teaching patients an easy routine of abdominal self-massage will be able to do so after taking an introductory class. Once trained, practitioners will be able to educate patients in their office in as little as thirty minutes. A workbook and CD with a guided massage protocol will be made available by the principal investigator of this study to allow for additional support.

Implications for the Field of Spiritual Healing

Spiritual healing, at its best, acknowledges that body, mind, emotions, and spirit are intertwined rather than fragmented into parts. Abdominal massage can be considered a form of spiritual healing since it has the potential to support well-being on all levels. It has the capacity to release muscular tension and support organ function; it provides the opportunity to access emotional charges and belief systems; it has the ability to free energetic blockages and strengthen the lower energy centers of the body; and it may further intuitive awareness and spiritual growth by opening the access to gut intuition.

At the same time, no one healing modality is for everyone. It is essential to look at each patient at large, taking into account the needs and values of the individual and any imbalances that may present on an emotional, mental, spiritual, environmental, and socioeconomic level. For the greatest benefit, treatments may have to vary and blend accordingly. Abdominal self-massage is a healing modality that, according to the quantitative analysis and anecdotal evidence, has the capacity to greatly improve general bowel health and quality of life. No known negative side-effects have been observed, and it is an easy-to-learn and easy-to-apply modality. At the same time, it is not a quick cure and will require commitment, consistency, and a willingness to slow down and listen

within. For patients willing to take the time to engage in this modality, it has shown potential to be an empowering and highly promising form of treatment.

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APPENDIX A – PARTICIPANT COMMUNICATION

A.1 Initial Email/Mailer

[date]

[Name of the person addressed or To whom it may concern]

My name is Silke Greiner. I am a doctoral candidate at Holos University Graduate Seminary. I also have been working as a full time massage therapist in private practice for the past thirteen years. One of my areas of expertise and extensive study is abdominal and organ massage.

I am currently inviting 80 adults suffering from constipation to participate in my doctoral research study. The study is designed to investigate the effects of abdominal self-massage in the treatment of adult constipation.

My desire is to assist adults suffering from constipation by teaching them a simple fifteen-minute self-help routine. Four weekly classes, a workbook, and a recording of the massage protocol will motivate and support participants. Participation in this study is free of charge.

Previous studies have shown that abdominal massage can increase the number of bowel movements, lessen symptoms of abdominal pain and straining, and increase quality of life in adults suffering from constipation. My experience in private practice has shown that clients engaged in abdominal self-massage report great improvement in their digestive health. Since almost no research has been done on abdominal self-massage, the proposed study will add needed research in this area.

This study will be conducted September 2011 to February 2012. I am looking to recruit adults from your school [clinic, office] who are suffering from constipation. It would be wonderful for me to have your support in advertising this study. Should you be willing to endorse this project, I have additional informational letters and posters I would like to send to you as needed to make it easy for you to advertise the study amongst your students (patients, office). Just let me know how many you would like me to send you, and whether you prefer them to be sent by mail or as an email attachment for you to print out as needed.

With your permission, I would also like to email you a note that you could forward to clients of yours who might qualify, or to your contact list of colleagues and friends as you deem appropriate? If that is comfortable to you, please let me know.

Please don't hesitate to contact me with any questions, requests, or comments you might have by phone, email, or mail. You can also find more information on this study and on my work at www.silkegreiner.com. I would greatly appreciate any and all support for

this study. Thank you so very much for considering this and for any help you can provide. I look forward to hearing from you.
Best wishes,

Sincerely,

Silke Greiner, Th.M., CMT, CNT
Principal Investigator - Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (vm)
415-962-4102 (fax)
www.silkegreiner.com

A.2 Cover Letter to Accompany Informational Letters and Posters

[Date]

Dear [name of the person who expressed interest]

As agreed upon in our phone conversation [email-exchange] on [date], I am sending you additional informational letters and posters. Thank you for your willingness to pass them on to clients [students, patients].

Please feel free to post the information. I am very happy to send extra letters and posters as needed. Let me know how I can best assist you in promoting your clients [students, patients] participation in this study.

I am readily available to answer any questions or concerns regarding the study by phone or email.

Thank you so much for your time and attention to this research study.

Sincerely,

Silke Greiner, Th.M., CMT, CNT
Principal Investigator - Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (vm)
415-962-4102 (fax)
www.silkegreiner.com

A.3 Informational Letter

A Research Study on Adult Constipation Using Abdominal Self-Massage

Learn Abdominal Self-Massage

Gentle – Effective – Easy

Pre-requisites for the study:

I am currently inviting people who experience mild to severe constipation to participate in the upcoming clinical trial. Constipation, for this study, is defined as having two or more of the following symptoms: straining, hard stools, anal blockage/restriction, incomplete bowel movements, painful bowel movements, or infrequent bowel movements.

In order to participate, participants also need to be 18 years or older and not suffer from stomach or colon cancer, active diverticulitis, active ulcers, or dementia.

Basic Information

The clinical trial, due to its nature, includes some forms to be filled out over a ten-week period (about 13-15 minutes time commitment at four different times). You will also be asked to keep a short daily log for the ten week period which will take about one to two minutes a day of your time. All forms are available electronically as well as in paper and pen format. The study, for all participants, will begin on September 10th with the first set of forms and the start of the daily log.

In late August, I will use a process called matched randomization to divide everyone that is signed up for the study into two groups. This is an important step in clinical research and assures a sound study. People assigned to group one, also known as the intervention group, will attend at least the first two classes in abdominal self-massage offered in September/October. Participants in this group commit to massaging their abdomen fifteen minutes a day for four weeks, starting with the first class.

People assigned to group two, known as the control group, are invited to attend classes in January/February. Participants of this group will live life as usual throughout the ten week period of the clinical trial, and begin learning and applying abdominal self-massage after the completion of the research study.

Each participant will, within the assigned group, be able to choose a class-series, i. e. Saturday classes in Fairfax. Class-series will run once a week for four weeks.

The commitment for the study:

- 1) As a study participant in group one, you will commit to attending the first two classes offered in a four-week class series; week three and four are optional yet highly encouraged. Classes are ninety minutes each. Please see below for your choice of locations, dates, and times.
- 2) As a study participant in group one, you will commit to fifteen minutes of daily abdominal self-massage for the duration of four weeks.
- 3) As a study participant, you will complete three initial forms consisting of a diagnostic questionnaire, a health intake form, and a simple demographic form. These initial forms together will take about fifteen to twenty minutes of your time and are an important pre-requisite for entering the study.
- 4) As a study participant, you will complete a short daily log over the duration of ten weeks, which will take approximately one to two minutes per day
- 5) As a study participant, you will complete four assessments over the course of ten weeks. Each assessment consists of three surveys and takes a total of approximately thirteen to fifteen minutes to complete. If you so wish, you may access the assessments before committing to the research study.
- 6) As a study participant, upon your approval, you will sign and return a consent form agreeing to the terms of the study. You may withdraw from the study at any time.

My commitment to participants:

- 1) As a study participant, you will receive four abdominal self-massage classes (once a week for four consecutive weeks)
- 2) As a study participant, you will receive a workbook and an audio recording of the massage protocol to guide you through the daily self-massage.
- 3) As a study participant, you will receive my support in answering any questions or concerns you might have, now, during, and after the completion of the research study. Please don't hesitate to contact me by phone or by email.
- 4) As a study participant, you will have access to computer support by a professional IT expert in case you have any problems with the electronic format of the questionnaires. A paper and pen option is also available.
- 5) I will keep your information confidential by assigning you a code number in my data entry. Your name will not be used at any time.

A.4 Class Schedule

Class Schedule

In a process of matched randomization, I will assign participants into either group one or group two. I am sorry that I won't be able to take your preferences into account. Within the assigned group, you will be able to choose a class-series, i.e. Saturday classes in Fairfax. Classes will run once a week for four weeks. Below find a pre-view of the various choices of class times and locations.

Fairfax – 73 Gregory Drive

Group One

Saturdays 9/24, 10/1, 10/8, and 10/15 from 3:30 to 5:00 or
Monday 9/26, 10/3, 10/10, and 10/17 from 6:30 to 8:00

Group Two

Saturdays 01/21, 01/28, 02/5, and 02/11 from 3:30 to 5:00 or
Mondays 01/23, 01/30, 02/6, and 02/13 from 6:30 to 8:00

Oakland – 481 36th Street (by Telegraph Ave, close to MacArthur Bart Station and Transit Line 1)

Group One

Sundays 9/25, 10/02, 10/09, and 10/16 from 10:00 to 11:30
Tuesdays 9/27, 10/04, 10/11, and 10/18 from 6:30 to 8:00

Group Two

Sundays 01/22, 01/29, 02/05, and 02/12 from 10:00 to 11:30
Tuesdays 01/24, 01/31, 02/07, and 02/14 from 6:30 to 8:00

San Francisco – 1590 Bryant Street (by 16th Street, close to 16th/Mission Bart Station)

Group One

Sundays 9/25, 10/02, 10/09, and 10/16 from 2:00 to 3:30

Group Two

Sundays 01/22, 01/29, 02/05, and 02/12 from 2:00 to 3:30

A.5 Handout Flyers

CONSTIPATED?

Learn Abdominal Self-Massage Gentle - Effective - Easy

**Become a Research Participant
Free of Charge**

Four 90-minute classes will provide you with invaluable skills to support your internal organs and ease mild to severe constipation.

Please consider participating if you experience two of the following symptoms: straining, hard stools, anal blockage/restriction, incomplete bowel movements, painful bowel movements, or infrequent bowel movements.



**Classes in September and January
offered in Fairfax, Oakland, and San Francisco**

Sign up early to secure your place

I am currently writing my doctoral thesis on abdominal self-massage for the treatment of constipation. I have been working as a full time massage therapist in Fairfax for the past thirteen years. I chose constipation as my research topic not only because I have had great success working with clients who have been experiencing problems with digestion and elimination, but also because it seems to be a prevalent malady in our society that easily can be helped with abdominal self-massage. I look forward to hearing from you.

**For more information and to receive your informational package,
call Silke Greiner at 415-419-3507, email at silke@silkegreiner.com,
or visit www.silkegreiner.com.**

A.6 Flyer

CONSTIPATED?

Learn Abdominal Self-Massage Gentle - Effective - Easy

Become a Research Participant Free of Charge

Four 90-minute classes will provide you with invaluable skills to support your internal organs and ease mild to severe constipation.

Please consider participating in the upcoming clinical trial if you experience two of the following symptoms: straining, hard stools, anal blockage/restriction, incomplete bowel movements, painful bowel movements, or infrequent bowel movements.



Classes in September and January offered in Fairfax, Oakland, and San Francisco

Sign up by September 10th to secure your place
For more information and to receive your informational package,
call Silke Greiner at **415-419-3507**, email at silke@silkegreiner.com,
or visit www.silkegreiner.com.

I am currently writing my doctoral thesis on abdominal self-massage for the treatment of constipation. I have been working as a full time massage therapist in Fairfax for the past thirteen years. I chose constipation as my research topic not only because I have had great success working with clients who have been experiencing problems with digestion and elimination, but also because it seems to be a prevalent malady in our society that easily can be helped with abdominal self-massage. I look forward to hearing from you.

Silke Greiner
415-419-3507
silke@silkegreiner.com

A.7 Internet Ad

Join a research study to remedy your constipation naturally by learning abdominal self-massage. Participants will receive four weekly classes (offered in Fairfax, Oakland, and San Francisco) as well as a guided massage protocol on CD with accompanying workbook. Participation in this study is free of charge.

Participants will engage in daily abdominal self-massage for the duration of four weeks (15 minutes/day) and complete various questionnaires throughout the ten-week study (about 2 hours total time commitment). Classes will be held in September (group one) and January (group two). You can read more about the study at www.silkegreiner.com. Please feel free to contact Silke Greiner with questions anytime. Sign-up by August 30th.

A.8 Newsletter and Website Announcements

Silke Greiner, a doctoral candidate at Holos University Graduate Seminary and long time massage therapist is currently inviting 80 adults suffering from constipation to participate in her doctoral research study. The study is designed to investigate the effects of abdominal self-massage in the treatment of adult constipation.

Participation in this study is free of charge.

Participants will engage in daily abdominal self-massage for the duration of four weeks (15 minutes/day) and complete various questionnaires throughout the ten-week study (about 2 hours total time commitment). Classes will be held in September (group one) and January (group two).

You can read more about the study at www.silkegreiner.com. Please feel free to contact Silke Greiner with questions anytime by phone (415-419-3507) or email (silke@silkegreiner.com). The deadline for signing up is August 30th.

A.9 Initial Sign-up Form – ROME III

Dear [name],

I am delighted that you are interested in participating in the study.

Attached you will find more information regarding the study, as well as the ROME III, a short diagnostic questionnaire that will take about 2 minutes to complete. The ROME III is the basis of entry into the research study, a common standard procedure for research studies investigating constipation.

Please save the form to your computer, open it from there, fill it out, save and close it, and then return it as an email attachment to me. It seems that you need Adobe Reader 10, which is the newest version of Adobe Reader, in order to open the document (it is a free and safe download). In case you have any problems opening it, or a question about how to attach the form to your email, please don't hesitate to call. I or my husband John, who is a computer expert, will gladly help you.

The newest version of the Mac operating system (10.6.7) might not be compatible with Adobe Reader 10. In case the document does not open or you prefer a paper and pen version, please send me your address and I will mail the documents together with a stamped and self-addressed envelope to you.

And of course I am readily available to answer any and all questions regarding the research study.

I look forward to hearing from you.

Warmly,

Silke Greiner, Th.M., CMT, CNT
Principal Investigator - Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (phone)
415-962-4102 (fax)
www.silkegreiner.com

A.10 Completion of Sign-up

Dear [name]

Thank you so much for returning the Rome III questionnaire. I am thrilled that you meet the entry requirements and will do all I can to make your participation in the study a positive, empowering, and beneficial experience for you.

There are a few more documents to fill out to complete the sign-up. Thanks for your patience with the paperwork needed for a doctoral study!

This email has three forms attached:

- consent form
- health intake form
- demographic intake form

Please print out and sign the **consent form** before returning it to me. You can either fax the signed copy to me (415-962-4102), scan the signed copy into your computer and attach it as a file, or mail it to Silke Greiner, 73 Gregory Drive, Fairfax CA 94930. The consent form is required to be signed by all study participants. It outlines all aspects of the study and clearly states your rights as a study participant.

The **health intake form** and **demographic intake form** are two important forms that provide detailed information regarding possible causes of constipation. This information is needed for the final evaluation of the study results. It is also used as the foundation for a process of matched randomization, which allows me to have equivalency in the control group and intervention group. In case you don't feel comfortable with filling out a certain aspect of the intake form, feel free to talk to me. Please be assured that all forms and questionnaires in this study are strictly confidential. Once I receive a form, I will erase the name on it, issue a number for filing, and then save the changed document on my computer – therefore deleting any identifying information on the document itself. The spread sheet that matches names and numbers is only accessed by me.

With the return of the signed consent form and the health intake form and demographic intake form, you will be officially signed up for the research study. I am so glad you are part of it!!!

Warmly,
Silke

Silke Greiner, Th.M., CMT, CNT
Principal Investigator - Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (vm)
415-962-4102 (fax)
www.silkegreiner.com

A.11 Group Assignment - Intervention Group

Dear [name]

The beginning of the study is drawing closer and the process of randomization into group A and group B has been completed.

You were randomly selected to be in **Group A**

As a participant of Group A, you are asked to attend at least the first two classes offered and commit to massaging your abdomen fifteen minutes a day for a minimum of four weeks, starting with your first class. In order to track whether the self-massage does make a difference in your digestive health and overall well-being, you are asked to fill out four sets of forms over a period of ten weeks (a thirteen to fifteen minute time commitment at four different times). You will also be asked to keep a short daily log for the ten week period which will take about one to two minutes a day of your time. All forms are available electronically as well as in paper and pen format. I have it noted to send the forms to you electronically – please let me know should you prefer the paper and pen version. The study will begin on September 10th with the first set of forms and the start of the daily log.

The questionnaires are highly time sensitive.

They are designed to be filled out on:

9/10/2011

9/24/2011

10/22/2011

11/20/2011

Please fill out the forms within 72 hours of arrival. Timeliness in filling out the forms is crucial for the success of the research study. In case you have any concerns about this time commitment, please talk to me about this as soon as possible.

Your class-series in abdominal self-massage begins the fourth week of September. You are invited to choose between five different class days and times. Please remember that you will only participate in **one** class per week. Let me know in case you need to switch class days within a week should you have scheduling difficulties at certain times.

Fairfax – 73 Gregory Drive

Saturdays 9/24, 10/1, 10/8, and 10/15 from 3:30 to 5:00

Monday 9/26, 10/3, 10/10, and 10/17 from 6:30 to 8:00

Oakland – 481 36th Street (by Telegraph Ave, close to MacArthur Bart Station and Transit Line 1)

Sundays 9/25, 10/02, 10/09, and 10/16 from 10:00 to 11:30

Tuesdays 9/27, 10/04, 10/11, and 10/18 from 6:30 to 8:00

San Francisco – 1590 Bryant Street (Sports Basement; by 16th Street, close to 16th/Mission Bart Station)
Sundays 9/25, 10/02, 10/09, and 10/16 from 2:00 to 3:30

Thanks again for your willingness to contribute to scientific research – this study couldn't happen without you! As always, please don't hesitate to contact me with any questions or concerns you might have. Thank you so much for your time and attention to this research study.

Sincerely,
Silke Greiner

Silke Greiner, Th.M., CMT, CNT
Principal Investigator - Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (vm)
415-962-4102 (fax)
www.silkegreiner.com

A. 12 Group Assignment - Control Group

Dear [name]

The beginning of the study is drawing closer and the process of randomization into group A and group B has been completed.

You were randomly selected to be in **Group B**

As a participant of the group B, you are asked to continue with your regular routine of bowel care and fill out four sets of forms over a period of ten weeks (a thirteen to fifteen minute time commitment at four different times). You will also be asked to keep a short daily log for the ten week period which will take about one to two minutes of your time. All forms are available electronically as well as in paper and pen format. I have it noted to send the forms to you electronically – please let me know should you prefer the paper and pen version. The study will begin on September 10th with the first set of forms and the start of the daily log.

The questionnaires are highly time sensitive.

They are designed to be filled out on:

9/10/2011

9/24/2011

10/22/2011

11/20/2011

Please fill out the forms within 72 hours of arrival. Timeliness in filling out the forms is crucial for the success of the research study. In case you have any concerns about this time commitment, please talk to me about this as soon as possible.

Your class-series in abdominal self-massage will begin the fourth week of January. You are invited to choose between five different class days and times.

Please remember that you will only participate in **one** class per week. You are welcome to switch class days within a week should you have scheduling difficulties at certain times.

Fairfax – 73 Gregory Drive

Saturdays 01/21, 01/28, 02/05, and 02/11 from 3:30 to 5:00 or

Mondays 01/23, 01/30, 02/06, and 02/13 from 6:30 to 8:00

Oakland – 481 36th Street (by Telegraph Ave, close to MacArthur Bart Station and Transit Line 1)

Sundays 01/22, 01/29, 02/05, and 02/12 from 10:00 to 11:30

Tuesdays 01/24, 01/31, 02/07, and 02/14 from 6:30 to 8:00

San Francisco – 1590 Bryant Street (Sports Basement; by 16th Street, close to 16th/Mission Bart Station)

Sundays 01/22, 01/29, 02/05, and 02/12 from 2:00 to 3:30

Thanks again for your willingness to contribute to scientific research – this study couldn't happen without you! As always, please don't hesitate to contact me with any questions or concerns you might have. Thank you so much for your time and attention to this research study.

Sincerely,
Silke Greiner

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A.13 Cover Letter with First Set of Surveys

Dear [name]

The official start of the research study is here. I attached the first set of questionnaires and the daily log in this email. Please make sure to save the documents on your desktop before filling them out.

Questionnaires: The attached the three questionnaires used in this study, namely the Patient Assessment of Constipation (**PAC-SYM**), the Patient Assessment of Constipation Quality of Life (**PAC-QOL**), and the Psychological General Well-Being Index (**PGWBI**).

Please choose a quiet time and location to complete the three measures. In total, it will take you about thirteen to fifteen minutes to complete. Don't spend a lot of time on each question but go with your first impression. There are no right or wrong answers. *Please answer all questions*, even if they don't seem pertinent to you. Please fill the forms out within the next 72 hours, and return the three forms in an email attachment to me latest by Sunday, September 11. Thank you so much.

Daily Log: You will find the document containing the log for week one, starting on Monday 9/12. The easy electronic format should allow you to complete it in about one minute a day. Please make sure to fill out the log every day in order to provide accurate information. Most people like to fill it out throughout the day or in the evening. At the end of the week, please send the fully completed document back to me.

P.S. In the upper right corner of all forms you will see a button called "highlight fields." Having this button active will make it even easier to fill out the forms. Simply click on it to activate blue highlighting on the fields to be filled out.

Warmly,
Silke

Silke Greiner, Th.M., CMT, CNT
Principal Investigator
Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (vm)
415-962-4102 (fax)
www.silkegreiner.com

A.14 Class Confirmation – Directions

Dear [name]

The first class in abdominal massage is coming closer. You are signed up to attend class this [date] at [time] at [location].

You can see more detailed directions and a map at [website]

We will be working on the floor. Please wear comfortable clothing and bring what will add to your personal comfort, such as a yoga mat, blanket, and pillows.

I look forward to seeing you [day].

Warmly,
Silke Greiner
415-419-3507

P.S. I was asked by a participant whether it is okay to bring a friend. Unfortunately, this class series is only for participants of the clinical trial and closed to the general public.

P.P.S. I do not have a cell phone – please make sure you are clear on directions before the class since I won't be able to take any calls after [time].

A.15 Cover Letter with Subsequent Surveys

Dear [name]

Thank you so much for sending back the last set of surveys [last week's daily log]. It is already time for the [second, third, last] survey [second, third, etc week of the daily log]. I greatly appreciate your willingness to take the time and energy to fill out the questionnaires and, once again, return them to me in an email attachment [in the postage-paid envelope provided]. Timing is still important, so please be sure to mail the completed questionnaires [daily log] back to me within approximately 72 hours from when you receive them, latest by [date]. Should that not be possible, please call or email me as soon as you can.

Please let me remind you again to answer every question in the surveys. If you are not sure about an answer, check off the one that is the most likely one. Please do not leave any questions unanswered.

And as always, if you would like additional information concerning this study, you are at all times welcome to contact me by phone or mail.

Thank you again for your participation!

Sincerely,

Silke Greiner, Th.M., CMT, CNT
Principal Investigator
Holos University Graduate Seminary
73 Gregory Drive, Fairfax, CA 94930
415-419-3507 (vm)
415-962-4102 (fax)
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APPENDIX B - INSTRUMENTS

B.1 Demographic Intake Form

This information will be kept in strict confidentiality

Name _____
Address _____
Phone: _____ (home) _____ (cell)
Email _____
Fax _____

Gender: Male Female

Date of Birth _____ Age _____

Height _____ Weight _____

Employment Status

Employed

Occupation _____ full-time part-time

Unemployed

Student

What is your race?

American Indian or Alaska Native

Pacific Islander or Native Hawaiian

Asian

White or Caucasian

Black/African American

Other (Specify) _____

Are you of Hispanic Origin? Yes No

What is your highest educational level?

Less than High School Diploma

Some College

High School Diploma

College Graduate

What is your relationship status? _____

Do you have child(ren)? If so, how many? _____

What is the age of your child(ren)? _____

Where is your home located?

City Suburban Area Rural Area

Including yourself, how many people live in your household? ___ adults and ___ children

Thinking about the total combined income from all sources for all persons in your household, was your total household annual income in 2010

\$10,000 or less

\$40,000 to \$60,000

\$10,000 to \$20,000

\$60,000 to \$80,000

\$20,000 to \$40,000

Over \$80,000

B.2 Health Intake Form

This detailed intake form has many questions, searching for potential connections to constipation. Please take the time to finish the full form. In case you have any questions about this form or would rather discuss some questions over the phone, feel free to contact me at 415-419-3507 or silke@silkegreiner.com.

Name _____ Today's date _____

Health History

Please check any of the below symptoms or diseases you have or have experienced in the past.

If applicable, mark with **C for current**, and **P for past**.

Use a scale of 1 to 5 to indicate the severity of the ailment: **1 the least**, and **5 the most severe**.

	C/P	1 to 5		C/P	1 to 5
Allergies			High blood pressure		
Anxiety			Hypoglycemia (low blood sugar)		
Arthritis/Tendonitis			Immune disorders		
Asthma or lung conditions			Loss of smell, taste, vision		
Blood clots			Low blood pressure		
Cancer/Tumors			Memory loss		
Chemical/Environmental sensitivities			Muscle/Bone Injuries		
Chronic pain			Muscle/Joint pain		
Circulatory/Heart problems			ringing in ears		
Depression			Nervousness		
Diabetes			Numbness or tingling Location _____		
Dizziness			Seizures		
Excess stress			Sciatica		
Excess use of drugs or alcohol			Sinus conditions		
Fatigue			Skin problems		
Frequent colds/ respiratory conditions			Sleep difficulties		
Headaches: <input type="checkbox"/> migraine <input type="checkbox"/> tension <input type="checkbox"/> cluster			Swelling Location _____		
Herniated or bulging disc(s) Location _____			Other:		

Women only:

How many pregnancies have you had? _____

Number of deliveries _____ Dates _____

Termination(s) yes no If so, when _____ Miscarriage(s) yes no If so, when _____

Method of contraception: pill patch diaphragm injection condom IUD

abstinence rhythm method Other _____

Have you ever had: hysterectomy both ovaries removed repair of a prolapsed vagina

repair of a prolapsed bladder repair of a prolapsed bowel

Are you currently taking hormone replacement therapy? Yes No

Men only:

Do you experience prostate problems? If so, please explain _____

In case you need more writing space, please turn form over and use the other side.

List previous major injuries, surgeries, and hospitalizations (year and type) _____

Have you had any recent illnesses and procedures? Please explain _____

Have you ever had a serious accidents or traumas? Please explain _____

Have you ever injured your sacrum head tailbone? Please explain _____

Have you had birth trauma? Please explain _____

Who is your Primary Care Physician? _____

Are you currently under a physicians care for an acute or chronic illness? If so, what illness? _____

List current medications (name, date started, does it help?) _____

List all herbs and vitamins you are currently taking _____

What alternative modalities have you worked with in the past or are currently working with?

	Past	Current		Past	Current
Acupuncture			Massage Therapy		
Ayurveda			Naturopathy		
Psychotherapy			Physical Therapy		
<u>Herbalism</u>			Other: _____		
Homeopathy			Other: _____		

Digestive History

Please check any of the below symptoms or diseases you have or have experienced in the past.

Mark with **C** for current, and **P** for past.

Use a scale of 1 to 5 to indicate the severity of the ailment: **1** the least severe, and **5** the most severe.

	C/P	1 to5		C/P	1 to5
Anorexia nervosa			Indigestion		
Belching			Irritable Bowel Syndrome		
Bulimia			Large appetite		
Changes in bowel habits			Liver problems		
Crohn's disease			Low appetite		
Constipation			Nausea		
Diarrhea			Pain after Eating		
Diverticulitis			Parasites		
Dysentery			Stomach Aches		
Eating disorders			Sudden weight change		
Flatulence			Ulcer		
Food unappetizing			Ulcerative Colitis		
Gallstones			Vomiting		
Heartburn			Other:		
Hemorrhoids					

How often do you have a bowel movement?	_____ times per week		
What is the general stool consistency?	<input type="checkbox"/> hard	<input type="checkbox"/> soft	<input type="checkbox"/> liquid
Do your stools	<input type="checkbox"/> float	<input type="checkbox"/> sink	
Do you strain to defecate	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> sometimes
Does it ever hurt to defecate?	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> sometimes
Are your stools very strong smelling?	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> sometimes
When do you usually have a bowel movement?	<input type="checkbox"/> morning	<input type="checkbox"/> day	<input type="checkbox"/> evening
Do you ever have diarrhea? If so, how often?	<input type="checkbox"/> yes: ___ per month		<input type="checkbox"/> no
Do you experience abdominal pain?	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> sometimes
During the past six months, have you done any treatment for constipation? If yes, please checkmark all that apply.	<input type="checkbox"/> laxatives	<input type="checkbox"/> enema	<input type="checkbox"/> suppositories
	<input type="checkbox"/> digital removal	<input type="checkbox"/> Other:	
Does constipation run in your family?	<input type="checkbox"/> father	<input type="checkbox"/> mother	<input type="checkbox"/> sibling
Overall, would you say your symptoms are	<input type="checkbox"/> better	<input type="checkbox"/> same	<input type="checkbox"/> worse
What do you personally believe causes your constipation?			
How old were you when you first experienced constipation?			
What happened in your life around that time?			

Diet

Typical Breakfast _____

Typical Lunch _____

Typical Dinner _____

Typical Snacks _____

Water Intake (glasses/day) _____

Caffeine (cup/day) _____

What is the worst thing on your diet? _____

What foods are your weaknesses? _____

What are your favorite foods? _____

What are your least favorite foods? _____

Are you subject to binge eating? yes no What foods _____Do you experience bloating gas burping after eating? What foods trigger this? _____**Taste and Spice Preferences***Use a scale of 1 to 5 to indicate your preferences: 1 the least favorite, and 5 the most favorite*

	1 to 5		1 to 5		1 to 5
Bitter		Hot (temperature)		Sour	
Cold (temperature)		Moist texture		Spicy	
Dry texture		Pungent		Sweet	
Fatty		Salty		Other	

Life Style

List physical activities you participate in regularly _____

How long and how many days per week _____

What kind of exercise do you enjoy? _____

Do you use tobacco? <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, ___ times/day	Total years of use _____
Do you use alcohol? <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, ___ oz/day of _____	Total years of use _____
Do you use recreational drugs? <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, type _____ _____ times/day	Total years of use _____
Have you ever abused drugs or alcohol in the past? <input type="checkbox"/> yes <input type="checkbox"/> no		

What is your main activity at work? On phone Sitting Computer Driving car Walking
 Other: _____

What do you do to relieve stress? _____

Are you satisfied with your energy levels? yes no Please explain _____Have your energy levels changes markedly at any point recently or in the past? yes no

What preceded this change? _____

Do you have a family history of abuse? physical emotional sexualHave you experienced rape or trauma? yes no If yes, when _____

B.3 Consent Form

Consent Form

For Participants of the Study “Abdominal Self-Massage in the Treatment of Adult Constipation”

Silke Greiner, a Holos University doctoral candidate, has requested your participation in a research study regarding abdominal self-massage in the treatment of adult constipation.

Holos University Graduate Seminary supports the practice of protection for human subjects participating in research. The following information is provided for you to help you decide whether you wish to participate in the presented study. Please be aware that, even if you agree to consent now, you are free to withdraw from the study at any time without penalty and without affecting your opportunities for participation in other projects offered by Holos University or Silke Greiner.

The purpose of this study is to investigate whether abdominal self-massage will increase bowel movements and well-being in adults suffering from constipation.

The principal investigator, Silke Greiner, is a licensed massage therapist and has been working with clients for the past thirteen years. She is extensively trained and highly experienced in the area of abdominal and organ massage. As part of the study, you will participate in four weekly ninety-minute classes in which Silke Greiner will teach you a safe protocol for abdominal self-massage. For the duration of four weeks, you will perform abdominal self-massage on yourself for fifteen minutes a day, at a time of your convenience.

In addition to participating in the class and the daily self-massage, you will be asked to complete three questionnaires at four different times over the course of ten weeks. Filling out the questionnaires should take about thirteen to fifteen minutes each time. The tests can be conveniently taken online and emailed to the principal investigator. Additionally, you will fill out a short daily log, which will require approximately one to two minutes of your time per day, for the duration of ten weeks. You will mail the completed log back to the principal investigator in a stamped, pre-addressed envelope that will be provided for you.

The benefits of participating in this study are an opportunity to learn a massage protocol that might support you in experiencing more regular bowel movements and increased well-being.

The risks of participating in the study may be disappointed expectations, possible minor detoxification effects such a sensation of slight nausea or minor abdominal pain, and maybe a more acute awareness of held emotional charges. Alternatives to study

participation include continuing with your current approach for constipation or consultation with your health care provider in regard to your constipation.

Your identity as part of this study will be held in strict confidence. All completed outcome measures will be de-identified by using a numeric assignment. Your name will not be associated in any way with the research findings. The results of the study may be published or reported in scientific presentations, but your name or identity will not be revealed. All data will be presented in aggregate group format, as opposed to individual participant data.

Since you might be part of a class in which you will meet some of the other study participants, you agree to voluntarily disclose your first name and any other identifying information with which you feel comfortable. The Principal Investigator will not share any of this information in the study.

There is no financial cost to you to participate in this study.

Your participation is greatly appreciated. If you would like additional information concerning this study before, during, or after it is complete, please feel free to contact me by phone, mail, or email. If you have concerns or questions about your rights as a research participant, you may also contact the Holos University Graduate Seminary Dean of Academic Affairs at (888) 272-6109. The address is P.O. Box 297, Bolivar, Missouri, 65648.

Sincerely,

Silke Greiner

Silke Greiner
Principal Investigator
73 Gregory Drive
Fairfax, CA 94930
(415) 419-3507
silke@silkegreiner.com

David Eichler, Ph.D.
Chair of Dissertation Committee
P.O. Box 297
Bolivar, MO 65648.
(888) 272-6109

Your signature below signifies that you have read the above informed consent form and that the study has been explained to you. You also understand that you may withdraw your consent and discontinue your participation at any time.

Signature of Participant _____ Date _____

B.4 Daily Log

Date

BOWEL MOVEMENT		#1		#2		#3	
When did you have your bowel movement							
What number on the Bristol Stool Form Scale represents your bowel movement? 1 (separate hard lumps, like nuts; hard to pass) 2 (sausage-shaped but lumpy) 3 (like a sausage but with cracks on the surface) 4 (like a sausage or snake, smooth and soft) 5 (soft blobs with clear-cut edges; passes easily) 6 (fluffy pieces with ragged edges; a mushy stool) 7 (watery, no solid pieces; entirely liquid)							
		yes	no	yes	no	yes	no
Did your elimination feel incomplete, like you didn't finish?							
Did you need to strain or squeeze to pass the stool?							
Did you experience pain or discomfort during evacuation?							
Please check if used	Laxatives Enema Digital Evacuation Suppositories Other						

Overall energy level	high medium low
Overall mood	high spirit good spirit up and down low spirit
Exercise	minutes
Water/Herbal tea intake	cups
Fiber intake	servings (One serving = 1/2 cup cooked vegetables, whole grains or legumes, 1 cup raw veggies or fruits)
Optional Notes	

B.5 Bristol Stool Chart

Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges (passed easily)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid

B.6 Anecdotal Reporting Form

“Please share about your experience with abdominal self-massage – what, if anything, did you notice on a physical, emotional, mental/psychological, and spiritual level? Did it affect your life in any way, for better or worse?”

B.7 Anecdotal Reporting Form – Content Analysis

A content analysis allowed for various themes to appear. Twenty-four out of thirty-five participants of the intervention group returned the Anecdotal Reporting Form. They wrote about what seemed important to them. Even though it is impossible to quantify anecdotal data, the following paragraphs highlight recurring themes. The themes are listed from most to least frequently mentioned, with at least four participants mentioning a given theme in order to qualify for inclusion.

Participation in the study was a positive experience: 21 individuals (88 percent) indicated that participation in the study was a positive experience.

- This was a thoroughly enjoyable process.
- WOW! I can't believe it is over - I am so glad I participated in the study. Like I had said before I was very skeptical about it working and I really could not see how just massaging my belly would help a problem that I have battled my whole life. I feel so thankful I now have an easy and free way to treat my constipation. I do not even think about being constipated anymore.
- Overall, this was a profoundly beneficial gift to my life.
- The confidence it gave me was strengthening – I liked knowing that I had some control over my condition.

Relief of constipation symptoms: 19 individuals (79 percent) indicated relief of constipation symptoms.

- My digestion has changed pretty dramatically. I now have 2 bowel movements per day with ease on most days as opposed to just 1 before starting the daily massage.
- I believe it has been very helpful in becoming more regular on a daily basis.
- The quality of my stools has improved dramatically and I have more ease when I do have bowel movements.
- The amount of each BM did increase. Instead of small rabbit pellets, I had more substantial BM's and mostly all type 4 and a few type 3.
- Usually I am constipated while traveling but not this time! Also did not take my nightly magnesium while traveling.
- My stools are noticeably healthier than they have been in a long time and when I do feel pain in my stomach, I am able to relieve it almost instantly.

Relief from symptoms other than constipation, such as headaches, structural and muscular pain, insomnia, and improved mood and energy levels: 12 individuals (50 percent) indicated relief from symptoms other than constipation, such as headaches, structural or muscular pain, insomnia, and improved mood and energy levels.

- It also helps me to fall asleep when I have insomnia.
- An added benefit is that the massage helps me with insomnia. I do the abdominal massage when I wake up and it helps me get back to sleep quickly.
- The abdominal massage has made a significant impact on my mood about life
- Not only has it been effective in shifting constipation, to my surprise, it seemed to have also shifted my depression and has given me more energy.

- I am less constipated and rarely experience bloating anymore. But the biggest and most welcome change has been in my chronic pain profile. I have a 25-year history of headaches. Since starting Chi Nei Tsang, things that would have triggered a headache a few months ago rarely do now. It's like my pain thermostat has been reset. I am grateful and amazed.
- I found considerable relief from the tightness, aches, and pains that I held in my back, neck, and legs for so many years. And of course no more tummy aches.
- My mental and psychological state has improved with improved digestion.
- Also, the pain I had while walking, in my lower right, has disappeared.

Intention of continuing with abdominal self-massage: 11 individuals (46 percent)

indicated an intention of continuing with abdominal self-massage.

- Though I feel my constipation situation has eased, I want to continue to do the massage both for its effect and the awareness it brings to my life and self.
- Self-massage is a skill that I will continue to explore and develop.
- I will continue with abdominal massage especially when I travel.
- I couldn't imagine starting or ending a day without the abdominal massage.

Increased physical, mental, psychological, or spiritual awareness: 9 individuals

(38 percent) indicated increased physical, mental, or psychological awareness.

- I have had lots of insights and since working on my abdomen daily, I have been deeply engaged in the healing process of childhood abuse.

- A significant benefit was an increase in mindfulness and feeling of connectedness to my body.

Change of life-style because of participating in the research study: 8 individuals (33 percent) indicated a change of life-style because of participating in the research study.

- I learned just how important my daily life's activities could greatly influence my digestive flow! I found that drinking more fluids and eating more grains helped. Talking things out with my husband, in a calm and relaxing environment, helped, too.
- The experience of spending quality time with my organs has taught me how to communicate with my body. As I listen closely, I learn more and more about which foods and thoughts serve me best.

Abdominal self-massage brought up difficult emotional material: 4 individuals (17 percent) indicated that the abdominal self-massage brought up difficult emotional material.

- I still intend to resume the massage, but feel that a certain emotional courage is needed in order to go back in there.
- At times, I've been confronted with intense emotions, disguised as tension held tightly in my body and as I become more in tune, I also become more familiar with what it feels like to let go of them.

B.8 Anecdotal Reporting Form – Complete Response

I want you to know that you have helped me so much! I found the abdominal massage to be very helpful. I started to do the massage because of bowel movements that were difficult, i.e. straining, hemorrhoids, aches and pains, especially my right hip. I did the massage faithfully until the end of October. After that, I have done it at least 2x a week. My digestion has changed pretty dramatically. I now have 2 bowel movements per day with ease on most days as opposed to just 1 before starting the daily massage. Also, my right hip pain has greatly improved.

Silke, I'm so grateful to have learned this massage. It also helps me to fall asleep when I have insomnia. It is both nurturing and healing. I hope your study is a big success. Dr. Greiner, you deserve the best! I really hope you start a class in abdominal massage. You are a wonderfully natural teacher.

Thank you for all your support during this study, I very much appreciate this gift that you have given me. It is such important knowledge and I am sure that I will continue to learn more and more as time goes by.

I'm unfortunately not as aware of my body as I should be, but what I can say is that I recently I have been getting rid of A LOT of things in my house that have not served a purpose for a very long time. I feel like moving things in my body has possibly helped me move stagnant things out of my life.

Thank you again for your kind support through this process, it has made all the difference. This was a thoroughly enjoyable process.

The abdominal massage has made a significant impact on my mood about life. I have felt more moments of simple happiness in being alive and have a sense that the sluggish parts of my life are begging to loosen and move. I am delighted to sense this simple and profound relationship growing between me and my intestines and the way it reflects holographically into my life. Though I feel my constipation situation has eased, I want to continue to do the massage both for its effect and the awareness it brings to my life and self.

As a teacher, Silke transmitted belly to belly, her embodied knowledge of the power of this work and the life treasure it has been for her. Her solid confidence in the practice of abdominal massage will go far in inspiring me to continue the practice and in opening to my gut.

Physically I feel good with more energy. I am very appreciative of the wonderful protocol of abdominal massage. I believe it has been very helpful in becoming more regular on a daily basis.

I was very regular at doing the practice of Chi Nei Tsang, sometimes even 2x a day. I tried to be gentle and intuitive with it. Scooping is my favorite. Spent considerable time with all of this, 1-2 hours a day, including deep abdominal breathing. Although I enjoyed and felt at home while doing the CNT I did not particularly feel any overflow in my life physically, emotionally, mentally, psychologically, or spiritually. I find it interesting because I was very dedicated to the sessions themselves and doing that felt extremely

optimistic of the possibility of transforming the present abdominal pain and constipation I feel so often. Can't do better than trying. Certainly have given this a good try. I feel most grateful to have had the opportunity to learn Chi Nei Tsang. I am so glad I saw the sign at the library bulletin board and followed up and called the phone number on it.

Even though I haven't felt the overflow of my practice of Chi Nei Tsang in my life, I do feel whenever I am doing it that it feels right. I like the non-verbal experience of touching the very area. I often think about it because of the distress I often feel in my abdomen. I realize this is a process and part of the process is the slowing down and the deep body awareness. Upon standing up even after practicing I am surprised how dissimilar the same area feels while minutes before in the position of lying down, knees raised, I felt better. Basically my body really likes lying down with knees up, hands massaging my belly. I feel at home and just "where I want to be". It would be with great joy to feel these same sensations continue in an upright position and also overflow in other areas. If there are further opportunities to be a part of Chi Nei Tsang study, please contact me. I thank you, Silke, for your healing presences and presentation of Chi Nei Tsang. It has been a precious gift.

I'm really glad that I participated in the study. I've been constipated for as long as I can remember, and my concern about this has increased as I've grown older for several reasons:

- Fear of some type of colon/rectal cancer
- Nutrients not getting absorbed because of buildup on the intestine walls
- Elasticity of intestinal walls being compromised because of the constant stretching from being backed-up
- General discomfort

I've gained a lot of awareness and information by participating in the study:

- I'm more aware of what I put into my body everyday
- I've gained a ton of awareness of how my gut feels and how that can influence my mood
- I have much more understanding of my large and small intestines
- I have increased sensitivity in my hands
- The quality of my stools has improved dramatically
- More ease when I do have bowel movements

I had hoped that self-massage would have increased the frequency of my bowel movements, but that hasn't been the case with me. I still have days in which I won't have a bowel movement, but it never goes past two days. Also, I can be aware that I have a stool inside me at times other than my usual morning bowel movement, but it almost always comes out the following morning.

During the study, I have paid more attention to my diet, largely eliminating my intake of meat and, to a lesser extent, wheat. I have noticed that both of these foods slow down my process. What I haven't done is to increase my intake of fruit, but at least I'm aware of this.

It is typical for me to get backed up when I travel, which I did about three weeks ago. For the first few days I was barely having anything, despite regular self-massage and diet. At the suggestion of a friend, I've been having hot water with lemon upon waking

up, and this seems to make a difference. Despite this, however, I've still had days without having a bowel movement.

This leads me to believe that there's much more involved with my "problems" than simply employing regular self-massage, changing my diet somewhat, and drinking hot water with lime juice upon awakening. The only remaining aspect I can think of is my emotional processing, which I feel has been a problem my entire life. I've made significant progress in the past few years, but there's a lot of room for improvement. I'm only recently introducing some breathing exercises to help with this.

In summary, while I believe that self-massage is an important factor in helping my constipation issues, it is not the panacea that I had hoped it would be. However, when combined with improved diet and, hopefully, better emotional processing, I will improve the functioning of organs, especially my large and small intestines. Self-massage is a skill that I will continue to explore and develop, and I'm giving serious consideration to studying this art in much more depth.

I'm very happy that I've partaken in this study. My awareness about so many issues in my life has increased a great deal.

Abdominal breathing has been the most beautiful part of self massage. I can't say the frequency of BM's improved much, but the amount of each BM did increase. Instead of small rabbit pellets, I had more substantial BM's and mostly all type 4 and a few type 3 I will continue with abdominal massage especially when I travel. I have other abdominal issues that may or may not relate to my bowels, i.e. fibroids, ovarian cysts, and fluids in my fallopian tubes. Hope this was helpful.

I couldn't imagine starting or ending a day without the abdominal massage. It has become a very big part of my life, helps me to be in touch and become aware of where I am at. I have had lots of insights and since working on my abdomen daily, I have been deeply engaged in the healing process of childhood abuse.

I haven't embraced it as much as I wanted. When I was more consistent with the practice, I found it to be successful. So, the physical level was my best experience. The confidence it gave me was strengthening – I liked knowing that I had some control over my condition.

Here is my personal experience of the whole study.

I came to this CNT study hoping for some relief from constipation and to basically feel better. Not only has it been effective in shifting constipation, to my surprised, it seemed to have also my depression and has given me more energy.

I had a terrible 18 months of grief (starting in January 2010) with having lost my dear friend of 30 years, and my older brother taking his own life. For a very long time I felt burdened by the grief and depression of this loss. This, of course, did not help my overall health, and I began to deal with some health concerns that could have turned into real issues.

I have been constipated my whole life, and no matter what I did, I could not seem to relieve this condition. Now I just spend 30-60 minutes a day messaging my belly and I fell right with the world! I seem to be more relaxed and grounded, I feel more in the flow

of my life, not resisting or grasping. Many things that have come together for me in the last several months to which I can attribute to the daily CNT regime. And this is only the beginning! I was happy to hear Silke's own personal experience that it took a year of this self-treatment to unwind her own internal tension, I can see how continuing shows the potential to bring not just a sense of wellbeing and health, but a tapping into my own power and potential. The more I work on my belly, the more my hands become knowledgeable to my inner world, and the more they respond to my subtle touch. It takes less and less to get more and more with this treatment!

I am so grateful to have the fortune of this experience, and look forward to seeing how it causes further positive effects in my life.

A word about Silke: Silke has been a superb facilitator. Her instruction so clear, thorough and easy to follow; her support and encouragement was kind and gentle; her knowledge of the subject made me put total confidence in what she was laying out. In a word the whole experience was PERFECT!

Wishing you the best, Silke, in your personal and professional worlds! I have a feeling we will be in touch somehow in the future.

Peace,

I have both an attraction to and an aversion from abdominal massage. I intuitively sense that I can really benefit from its centering and grounding effect, but it also seems to “stir the muck”. Enough to make me want to avoid it at times. Indeed, when we first started doing it after the first class, I noticed that my bowel movements were really thrown off from a typically daily routine, to skipping several days of regularity. However, after growing more accustomed to touching my belly and adjusting the techniques to be more comfortable, regularity pretty much returned to my bowel movements in terms of going in a daily basis. I did notice the effects of foods and drink on my bowel consistency. I am still challenged to incorporate abdominal massage on a daily basis, but I think it is a powerful and self-empowering tool to have in my toolbox that I am grateful to have to share. Thank you Silke.

Thank you so much for doing this research. Being able to do Chi Nei Tsang has been an incredible blessing for my health. No matter what I am feeling, I can always use Chi Nei Tsang to release tensions and revitalize my digestive system. I have seen a huge difference in my daily life and my health as a result of this work.

Integrating Chi Nei Tsang into my daily routine has significantly improved the quality of my life. For starters, I am less constipated and rarely experience bloating anymore. But the biggest and most welcome change has been in my chronic pain profile. I have a 25-year history of headaches. Since starting Chi Nei Tsang, things that would have triggered a headache a few months ago rarely do now. It's like my pain thermostat has been reset. I am grateful and amazed. And I must mention Silke's loving and inspired dedication to this work. She is an exceptionally skilled and compassionate healer. I am so glad to have met her and learn about Chi Nei Tsang.

I feel honored to have been part of this journey. I feel like you gave us all a very very valuable gift! Wow--it has been such a part of my life that I will miss it!!

I want to share with you that the classes and skills you taught us was very valuable with long-lasting benefits.

First of all, it built awareness about my condition. Having had constipation for as long as I can remember, I didn't know/think that it was all a part of digestive health. And that related symptoms include straining and feeling of incomplete emptying. And although I haven't made the connection with how it is related exactly, I now know that my mood and general sense of well-being are related to my constipation (as evidence by our daily logging of these). With increased knowledge come increased awareness, and extra ways in which I now can approach my constipation.

Secondly, I found our method of abdominal massage to be very accessible and duplicable. I have become a huge advocate of Asian bodywork ever since becoming its student at A.I. What I am learning in school feels so holistic and makes so much sense. But traditional massage is not easy to self-perform--how do I reach my back? It is easy to self treat with abdominal massage--easy to reach and not a strain. It can be done in a totally relaxed manner.

Thirdly, my constipation is overall improved since performing the abdominal massage for that short duration of time. I notice that my condition was at its best toward the end of the study until 2-3 weeks afterwards. When I noticed some reversal, I started to do this self massage again about twice a week and feel that I have been able to retain the benefits this way. I also notice an improved mood as I completed the periodic surveys; I would hope to think that this is the fruit of our labor and something I can help treat through the abdominal massage.

I really want to thank you for doing this research and for including me. You have picked a topic that you are very skilled at and formatted in a way that participants can really benefit from. I feel that your intention is bigger than a school research project--at least the effect turns out that way. I appreciate how approachable, generous, and loving you have been. I think it is not easy/natural/common to lay on the floor with belly exposed to a group of unfamiliar people. But you created an atmosphere that made it possible.

After completion of study: I haven't been able to do the abd. massage as much this past week and of course was traveling for 8 days. Usually I am constipated while traveling but not this time! Also did not take my nightly magnesium while traveling.

WOW! I can't believe it is over - I am so glad I participated in the study. Like I had said before I was very sceptical about it working and I really could not see how just massaging my belly would help a problem that i have battled my whole life. I feel so thankful I now have an easy and free way to treat my constipation. I do not even think about being constipated any more. The best part is that if it comes back I already know what to do. But I don't think it will happen because I will continue to massage my abdomen regularly. Its so easy now it can even do it while relaxing in front of the TV! That is what really nice part of the treatment is that i can do it anytime and anywhere. I wish the issue of constipation was not so uncomfortable to talk about because i would love to tell more people about it. Your research is so valuable and brings such an important issue and treatment to people who are suffering. The other thing I was/am so

grateful for is that your way with us was always so kind and caring. The empathy and deep caring you have for people really comes through the second I had contact with you. You are truly a gifted healer. I am sure you will move on to be very successful in what ever you chose to do. Thank you so much for teaching me how to heal myself. I look forward to seeing the results of the study when you are finished.

It was a pleasure working with you. I very much appreciate having another tool in my repertoire. I am now back to normal. I no longer am doing the stomach massage, nor need to do anything special to have normal bm's.
Best of luck now and always,

I am profoundly grateful to Silke for offering this study. At the outset, I knew almost nothing about normal bowel function. I had mild-mod constipation in my 30's - 40's and more IBS type symptoms in my late 40's - 50's such as diarrhea alternating with constipation. I think my diet is pretty healthy but I could never seem to get in track. Being diagnosed with diverticulitis and hemorrhoids and having my father die of colon cancer were wake up calls. Silke's questionnaire was a gentle reminder to regularly take enough fiber, drink enough water, and get exercise.
My results from the massage are probably not as dramatic as those of other participants because my life has been fairly chaotic in the past two months with a job change, colonoscopy, and several trips out of town that disrupted my schedule. The most significant improvement has been that I no longer have diarrhea and very rarely constipation that requires straining. I am positive that my bowel function will continue to improve and normalize and I plan to continue the massage daily. An added benefit is that the massage helps me with insomnia. I used to wake up in the early morning hours and start worrying. Now I do the abdominal massage when I wake up and it helps me get back to sleep quickly.

First of all, I must say that you have a wonderful healing presence and it was the face to face interaction with you that made this such a good experience. I enjoyed learning the massage from you and found the classes inspiring and containing. The classes themselves were a most voluble experience, despite the awkwardness of the strange basement environment :). The difficult thing about the massage was not the technique itself (which was instructed with ease and clarity), but the feelings that come up once I started feeling my internal organs. I was surprised with how tough and stiff my colon was and how hard and tense my stomach was. It was a little alarming for me to feel it (or feel into it) directly. It was interesting that after the mandatory massaging period had passed, I stopped doing the massage almost entirely and just then the constipation eased up and I had much better movements. I still intend to resume the massage, but feel that a certain emotional courage is needed in order to go back in there. I think this is why the classes and your personal instruction were so helpful: your therapeutic sensitivity and holding presence were helping me do what otherwise feels quite scary.. something I'd like to avoid.. There was certainly a lot of sadness associated with the touching of the hard colon, although the whole routine itself ends up being very relaxing. I guess it is a lot like meditation -- and exactly why I stopped meditating daily -- the massage calls you to be

with and observe some very difficult feelings and sensations, one needs spiritual courage to do that. or maybe just determination.

Thank you for all your kindness and support. All the best wishes.

I have been massaging my stomach everyday and there is no doubt that it has changed my life significantly. I feel I've begun to undo 23 years of damage in my digestive system and I wonder now how I ever did without something that feels so natural and instinctual. The experience of spending quality time with my organs has taught me how to communicate with my body. As I listen closely, I learn more and more about which foods and thoughts serve me best.

Moments spent massaging and breathing with my stomach are quite meditative and have the power to bring life to a slow present. At times, I've been confronted with intense emotions, disguised as tension held tightly in my body and as I become more in tune, I also become more familiar with what it feels like to let go of them. Or as you've said so beautifully: I sense myself "healing from the inside out."

My stools are noticeably healthier than they have been in a long time and when I do feel pain in my stomach, I am able to relieve it almost instantly. I feel extremely thankful and fortunate to have been given this magical tool!

Thank you Silke!

Thank you for the opportunity to learn CNT for self-treatment. I have been wanting and waiting to learn and here a wonderful opportunity presented itself with so much more. I have come to have a better understanding of the workings of the body with the daily self massage. I found considerable relief from the tightness, aches, and pains that I held in my back, neck, and legs for so many years. And of course no more tummy aches. Breathing is easier and the mind is clear and free to do its job. I feel so much more alive and to be my self completely. It's a way for us to teach our bodies to let go of that which is held and to start healing. Thank you Silke!

It was very challenging to consistently care of myself with the massage, and I had a lot of resistance in my body to the kind of touch. So often I had to back off quite a bit and do it very lightly. This was quite a surprise to me. I felt better about knowing I can count on my body to eliminate – having the tracking added an extra observer level to the process. Also I felt the love and caring from you Silke throughout the time. It was a sweet feeling and I think helped a challenging time be somewhat less lonely. Thank you!

There have been many aspects from this experience that have been beneficial

- Doing a daily log and recording the type of BM's I've had, their quality, consistency, shape, etc., though not new to me, was very beneficial and helpful with connecting more to my body and my daily life patterns
- The best and most helpful were the weekly classes. Hearing Silke's easy, calming, and supportive voice aided the learning and connection to my body, abdomen, and emotions.
- The hardest part was sustaining the practice. Even though it was always rewarding to every night go to sleep to massaging myself, I could not sustain it. And that is all about my personal journey in life.

Overall, this was a profoundly beneficial gift to my life. I wish and hope Silke provides this for many.

I found it extremely helpful to slow down and do the massage on a nightly basis. A significant benefit was an increase in mindfulness and feeling of connectedness to my body. I especially noticed this difference during and prior to my menses. Since it's been so hard to determine the root or causes of my stomach struggles the physical impact of the massage was not always clear and tangible. However, I do think that connecting with my body in this way has contributed to a powerful change that is taking place in my life around my spirituality. As I struggle to understand what is making me sick I have come to realize that clear, logical answers may never come. To cope with this I have turned to a more spiritual approach. While this process was taking place prior to participation in the study, I believe that learning this way of connecting with my body has been a valuable component of my spiritual journey. Since I am not religious it has been challenging to figure out how to do this in a way that feels authentic and beneficial despite my tendency towards skepticism. I think the massage is particularly helpful with this since it doesn't involve thinking through it, rather feeling my way through it. It has been a way to establish a daily practice and I also think it's contributed to a greater sense of resiliency and confidence that I can actually heal myself and get better. Even though I still struggle, I believe there was a definite shift in my mood and sense of hope which has been such a fantastically wonderful experience for me which I am immensely grateful for. I hope this feedback is still of use and will contribute to your findings in some way. I wish you the best in your efforts!

My experience with abdominal self-massage was a very positive one. I learned just how important my daily life's activities could greatly influence my digestive flow! When I was calm and intentional, things flowed smoothly. Conversely, when I experienced stress or found myself running around I was unable to relax and have a BM. On a physical level I learned which foods were more easily digestible for me. I found that drinking more fluids and eating more grains helped. When I became more emotional, it was like putting the breaks on elimination. Talking things out with my husband, in a calm and relaxing environment, helped, too. My mental and psychological state has improved with improved digestion. I do find that when I get stressed out, my colon follows suit. Between the daily stressed of raising children and actively looking for employment, some days can be pretty stressful. I enjoyed the moments of time dedicated to massage and relaxation. The deep breathing helped calm my nerves and brought me to a spiritual place.

I am having a slow gut and adhesions from surgery. Pain and bloating for years. I used to have to go to the ER for bowel obstructions. The self-massage is helping my constipation problem. Also, the pain I had while walking in my lower right has disappeared.

APPENDIX C
C.1 Abdominal Massage Workbook

Abdominal Self-Massage

Abdominal Self-Massage
Workbook

© 2011 by Silke Greiner, Th.M.

Holos University Graduate Seminary

This workbook is part of a doctoral research study on
**The Efficacy of Abdominal Self-Massage in the Treatment of Adult Constipation: A Randomized
Controlled Trial**

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permission in writing from the author.

Acknowledgements: This booklet would not have been possible without the work of my teachers Gilles Marin, Allison Post, Tiffany Fyans, Cynthia Astuto, Francesca Fasano, and Hasso Wittboldt-Mueller – I am so very grateful for your guidance. My deep appreciation goes to Gilles Marin, director of the Chi Nei Tsang Institute and beloved teacher, who graciously permitted me to adopt and modify his protocol of abdominal self-massage for this research study and granted me use of his teaching space – thank you so very much for your support. My deep gratitude also goes to Allison Post and Stephen Cavaliere, whose book *Unwinding the Belly* is an inspired work on abdominal self-massage.

Disclaimer: Please note that the information contained in this workbook is intended for informational and educational purposes only and not provided in order to diagnose, prescribe, treat, or cure any disease, illness, or injured condition of the body. Anyone suffering from any disease, illness, or injury is encouraged to consult with a physician. This workbook and the methods it describes should not be substituted for the advice and treatment of a physician or other licensed health-care professional. Participants who fail to consult with appropriate health authorities assume the risk of any injuries. The information and methods provided in this workbook here are believed to be accurate and sound, based on best knowledge, experience, and research of the author. Using the techniques herein is acknowledging that you have read, understand, and agree to this disclaimer and therefore informed consent has been established.

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Introduction

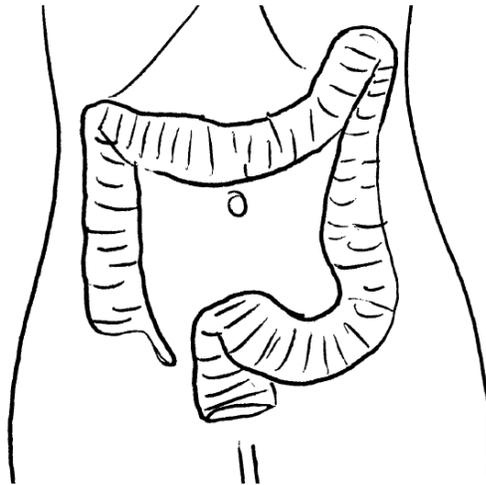
Welcome!!!

My name is Silke Greiner, and I am the principal investigator in the research study on the efficacy of abdominal self-massage in the treatment of adult constipation. I have been working as a licensed massage therapist in Marin County for the past thirteen years. One of my areas of passion, expertise, and extensive training is abdominal and organ massage, also known as Chi Nei Tsang.

This workbook is designed to provide a reminder of the material presented in class. It is also a companion to the audio version (CD) of the self-massage you received at class, which will guide you through each step of the abdominal self-massage.

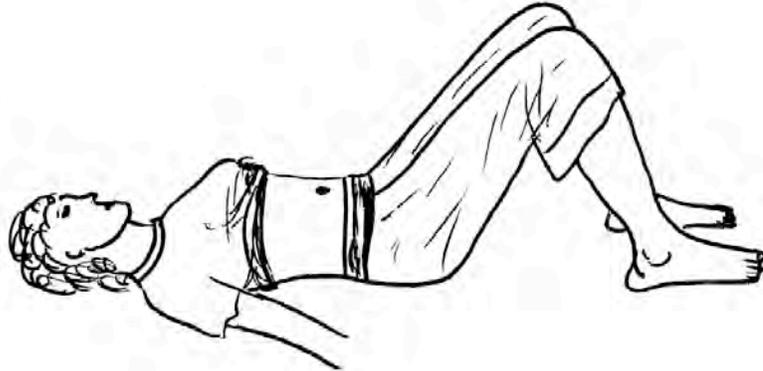
I feel deeply grateful for your commitment to be part of this research study and look forward to exploring with you the world of abdominal self-massage.

The Large Intestine



Abdominal Self-Massage – Detailed Protocol

Make sure you wear comfortable clothing that allows for easy access to your upper and lower belly. Lay on your back on a flat surface; most people prefer the bed or the floor.



Have your knees up and resting against each other and the feet hip-width apart and flat on the floor. This will assure that your back is in a neutral position and no muscles of the hips or abdomen are engaged.



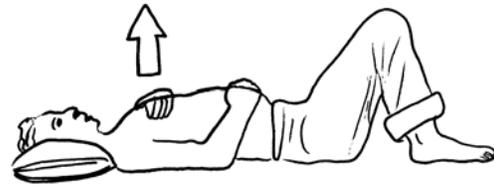
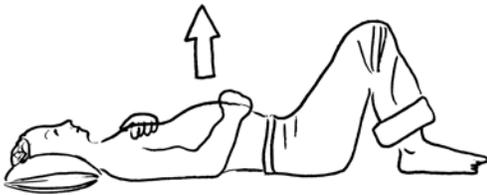
Some people prefer to put a pillow or two under the knees and/or a pillow under the head in order to relax more fully. If you favor a pillow under your knees, make sure you use enough support to get your knees well elevated. This will allow your abdominal muscles to relax more fully.

While doing abdominal massage, please remember to be gentle and patient. Breathing, awareness, and gentleness are more important than depth or skilled manipulation. Make sure your pelvis and joints are relaxed and you continue to breathe deeply throughout the self-massage. As much as you can, be aware of your emotions and accept whatever you feel with an open mind and a willingness to let it be whatever it is rather than trying to change it. Enjoy!

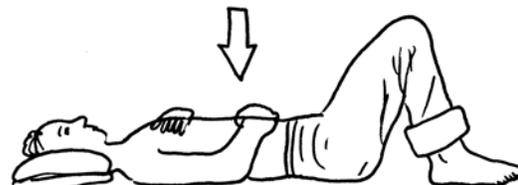
1. Breathing



Rest one palm gently on your lower belly, the other on your chest. Become aware of your breath. Allow yourself to slow your breathing, and to deepen the cycles of inhalation and exhalation. Ideally, you want your breath to be slow, gentle, regular, and deep.



Let your belly expand as you inhale all the way into the lowest part of your belly, down toward the pelvic floor. Feel your belly rise, gently pushing up against your hand. Make sure you don't use muscles; simply let air pressure expand your belly. Once the lower belly is expanded, let your rib cage and entire chest fill gently. Feel the breath create spaciousness all the way up to your sternum and upper shoulders.



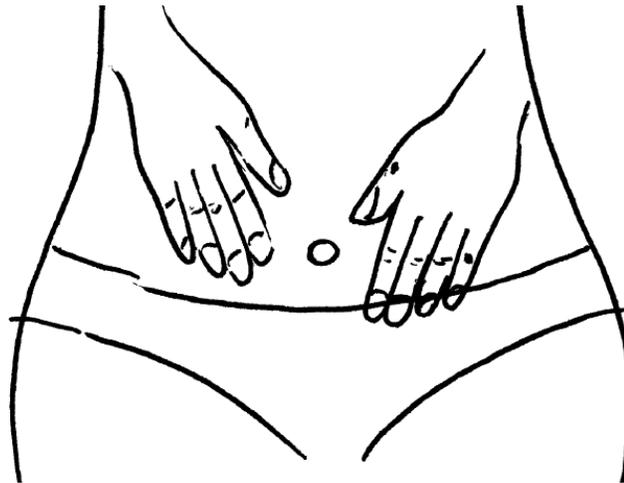
As you exhale slowly and fully, let first your chest move down, then your belly.

Take five slow, deep, gentle breaths. Continue to breathe deeply and softly throughout the entire session, making sure you don't use force and you don't hold your breath between inhalation and exhalation.

Benefits: Deep relaxed breathing, also known as abdominal breathing, is an important part of abdominal self-massage. It engages the respiratory diaphragm, the broad muscle at the base of your lungs that is connected to your large intestine. Deep breathing therefore provides an internal organ massage and stimulates peristaltic movement of the intestines. It also engages the parasympathetic nervous system which supports digestion and elimination.

2. Pumping/Cat's Paws

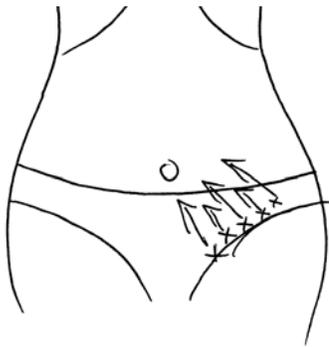
Imagine a cat climbing on your lap and kneading it with its paws before settling down...you want to elicit that same pleasurable feeling as you massage your belly with this "cat's paws" movement. Use a pumping motion with alternating hands to cover the entire area of the abdomen. Keep the fingers soft and slightly bent back. You will be able to sink, without pushing hard, about one to three inches deep into your belly, depending on your size and level of tension. Don't dig deep. This pumping motion is meant to explore the skin and slightly underneath, feeling for places that are tight or more sensitive than others.



Make sure to cover the entire surface of your belly with this alternating, rhythmic pumping motion, from your pubic bone and hip bones all the way up to the ribcage, going out to the sides as well as working around your navel. Spend a couple of minutes on this exploration and remember to keep breathing and to stay present with sensations and emotions that might be present. Then slow down and explore areas of tension. Keep your fingers soft but firm and go slightly deeper now as you stop in tight areas. Make sure to breathe deeply into any area of tension, and remember to be kind with yourself.

Benefits: Using this rhythmic pumping motion activates the lymph tissue below the superficial abdominal muscles. It prepares the body for deeper work and brings awareness to the areas of the abdomen that are tight and sensitive.

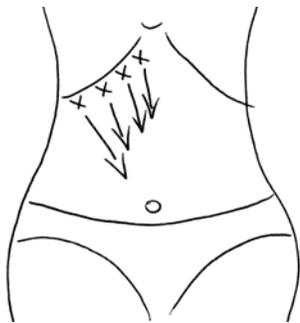
3. Scooping the Four Corners



Allow the fingers of both hands to sink into the tissue a couple of inches above the **LEFT** hipbone, then breathe out while reaching further under the hipbone and scooping up the tissue towards your navel. Keep your fingers soft yet firm. Repeat this movement ten times, moving from the inner edge of the hipbone to the outer edge, each time stretching toward the navel. Unless you use lotion, don't glide along the surface skin; stay anchored in the tissue and stretch the deeper fascia.



Repeat the scooping motion under the **LEFT** ribcage, starting at the outer edge. Let your fingers sink in and reach under the ribs, and stretch the tissue down towards the navel as you breathe out. The next time you sink in, place your fingers a little closer towards your midline and scoop towards the navel. Work your way to the sternum, and make sure to also stretch the tissue right underneath the sternum as well. Don't try to force anything. Follow your body's guidance on how much you can sink in and reach under before you stretch the tissue downwards. Take your time working your way along the ribcage.



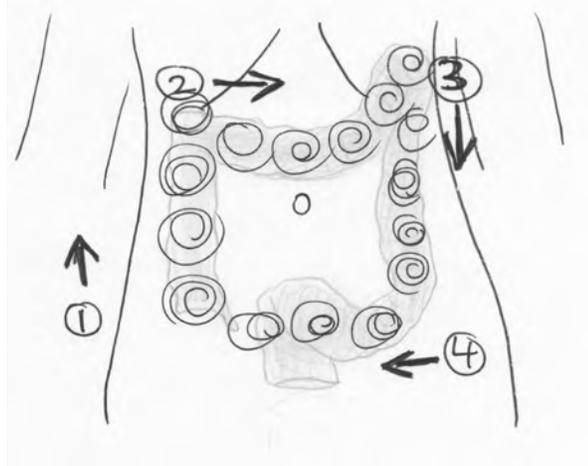
Keep on scooping under the **RIGHT** ribcage, starting close to the sternum and moving to the outer edge of the ribcage. Exhale as you stretch the tissue towards the navel. Notice how open your body is today, and spend extra time on any area that feels tight. As always, remember to be gentle, work slowly, and breathe into the area you are working on.



Finally, allow the fingers of both hands to sink into the tissue a couple of inches above the **RIGHT** hipbone. Then breathe out while reaching further under the hipbone and scooping up the tissue towards your navel. Keep your fingers soft as you massage your way towards the pubic bone and repeat about ten times.

Benefits: Working the four corners is an important part of decongesting the large intestine and allowing for smooth overall passage.

4. Opening the Large Intestine



Starting at the lower right of your belly, follow the entire length of the large intestine. Use the fingers of both hands and pick one spot on your lower right. Let your fingers sink in until you feel anchored in the tissue. Stay at that depth and make three to four circles, keeping the fingers soft and gentle yet using firm touch. Pick a spot a little higher, sink in and anchor, and do three to four circles again before moving up once again. Do this anchored circling movement along the entire length of your large intestines, moving slowly to the upper right, across the belly to your upper left, and then down to the lower left and a little up towards the middle. Go around the entire colon with the circular movement three times.



Then, using the palms of both hands, make big clockwise circles over your entire abdomen. Keep breathing deeply and feel your belly relax under your hands.

Benefits: Working along the pathway of the Large Intestine supports the body in achieving regular bowel movements and increases peristaltic movement of the colon.

5. Final Rest

Rest both hands on your belly, one hand slightly above your navel and the other at your lower belly. Send warmth into the abdomen. Absorb the warmth from your hands and breathe deeply, slowly, and softly. Stay like this for a minute or two, breathing and sensing into your belly, and allow yourself to take in the work you have just done.



Benefits: The final resting period is actually very important. It allows the body to take in the work you just have done and aids in the process of digestion and elimination.

Words of Wisdom

The belly does not change over night. Be patient. Be gentle. The massage should feel good. If it doesn't, slow down and be even softer in your touch. If you feel pain at any moment, ease up on the pressure and slow down as you massage the area of discomfort. Breathe deeply into that area and allow yourself to become fully present; track the sensations in your body, the feelings you might be experiencing, and notice images or thoughts. Be patient. The pain may or may not disappear on that day. Return the next day and notice how it feels this time. Remember that the deeper you want to reach into your abdomen, the softer your touch needs to be. I invite you to keep an attitude of compassion, non-judgment, and deep listening. Have fun exploring each day!!!

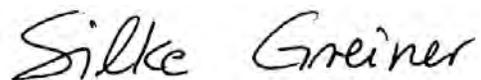
Contact Information

If you have any questions or concerns regarding the questionnaires, daily log, or massage protocol, or if you would like to discuss any experiences you have had as a response to engaging in abdominal self-massage, please don't hesitate to contact me.

Silke Greiner Doctoral Candidate, Th.M., CMT, CNT, SEP
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Phone: 415-419-3507
Email: silke@silkegreiner.com.
Website: www.silkegreiner.com

I look forward to hearing from you and supporting you.

Sincerely,

A handwritten signature in black ink that reads "Silke Greiner". The signature is written in a cursive, flowing style.

Abdominal Self-massage – Short Version

Lie face up on a comfortable surface, with your knees up and resting against each other and the feet hip-width apart and flat on the floor. This will assure that your back is in a neutral position so your belly can relax. Some people prefer to put a pillow or two under their knees for better support.

- 1) Rest one hand on your lower belly, the other on your chest. Slow down and deepen your breath. Expand the inhale into the lowest part of your belly, down toward the pelvic floor, and from there let your rib cage and entire chest fill gently. Take five slow, deep, gently breaths. Continue to breathe deeply but gently throughout the entire session.
- 2) Use a pumping motion with alternating hands on the entire area of your abdomen. Imagine the pleasure of cat's paws kneading your belly. Slow down and explore areas of tension with soft but firm fingers.
- 3) Inhale and let the soft fingers of both hands sink deeply under your left hipbone to stretch the tissue toward the navel. Repeat ten times. Use the same scooping motion under your left ribcage, and then work your way to your sternum and down the right ribcage, scooping about ten times at each location. Always make sure to sink in and reach under the bones before stretching the tissue toward the navel with an exhalation. Keep your fingers soft but massage with determination. Lastly, scoop under the right hipbone to stretch the tissue toward the navel ten times. Use soft but firm fingers and work with your breath.
- 4) Massage the entire length of the large intestine. Start at the lower right of the belly, moving to the upper right, across the belly to the upper left and down to the lower left. Always pick a point, sink into the tissue to anchor in, circle clockwise for a few rotations, and then move to the next point on the large intestine. Go around the entire length of the large intestine two to three times. Finally, make large clockwise circles with your palms over your abdomen.
- 5) Rest both hands on your belly, one hand slightly above your navel and the other at your lower belly. Send warmth into the abdomen. Absorb the warmth from your hands and breathe deeply, slowly, and softly.

While doing abdominal massage, please remember to be gentle and patient. Breathing, awareness, and gentleness are more important than depth or skilled manipulation. Make sure your pelvis and joints are relaxed and you continue to breathe deeply. As much as you can, be aware of your emotions and accept whatever you feel with an open mind and a willingness to let it be whatever it is rather than trying to change it. Have fun exploring!

C.2 CD Script – Abdominal Massage

Breathing

Lay on your back on a flat surface, with your knees up and resting against each other. Place one palm on your lower belly, the other on your chest. Allow your breath to slow down and deepen, and your body to relax. Take your time with each inhalation and exhalation, and begin to feel the spaciousness that opens up with deep breathing. As much as you can, allow your abdomen and chest to relax and open with each soft breath you take.

Imagine your pelvis as a bowl and let your next breath fill that bowl to overflowing, spilling into your lower belly and filling it up like a balloon. Exhale and gently let the belly fall back again. Keep your breath slow and even. When you breathe in, feel the front, the sides and the back of your abdomen expand. When you breathe out, extend your exhalations so they are as long as your inhalations and just as soft. Keep your muscles relaxed and let air pressure alone expand and deflate the belly. You might feel your abdominal organs begin to unwind and relax into the space you create.

Now, as you breathe in, let your breath move up all the way – from your pelvic bowl to your belly and chest, all the way up to your shoulder blades. When you breathe out, let the chest and the belly gently fall back again. Then breathe in again, and expand your body from the inside out in all directions, starting at the pelvic bowl and taking the expansion all the way to the shoulder blades. Keep breathing slowly and deeply, and feel the energy of each breath flow through your body, nurturing the internal organs, mobilizing the ribcage, and massaging your colon.

Cat's paws/Pumping

Now put your hands palm side down on your abdomen. Using alternate hands, start a rhythmic pumping motion. This motion is pretty similar to a cat climbing on your lap and kneading it with its paws before settling down. You want to elicit that same pleasurable feeling. Keep your fingers soft and slightly bend back as you roll through them. You will be able to sink, without pushing hard, about one to three inches deep into your belly, depending on your size and level of tension. Cover the entire surface of the belly with this alternate pumping motion, from the pubic bone and hip bones all the way up to the ribcage, to the sides of the belly, and around your navel. Don't dig deep. This pumping motion is meant to open the belly and to activate the lymph system. It also helps us to become aware of places that are tight or more sensitive than others. Once you covered the entire abdomen, slow down the movement and explore any area that draws you. Keep your fingers soft but firm and make sure to breathe deeply into the area you are working on. Remember to be kind with yourself and to stay present with what you find under your hands.

Scooping the four corners

Now bring your hands to the left side of your lower abdomen. Allow your fingers to sink into the tissue a couple of inches above your inner left hipbone, close to the pubic bone. As you breathe out, let your fingers reach under the hipbone and, staying at that depth, stretch the tissue towards the navel. Unless you use lotion, don't glide along the surface of the skin. Make sure to anchor and simply scoop and stretch up the deeper

tissue. Repeat this scooping motion all along your left hipbone. So, place your fingers a little more to the left, and then sink in, reach under the bone, and stretch the tissue up towards your navel. Picture a wheel with spokes over your abdomen; you want to stretch each spoke towards the hub, thus slowly making your way around the entire abdomen. So, once again, use soft but firm fingers to reach under the hipbone, a little closer to its outer edge this time, and scoop up. Keep reaching under and stretching up towards the navel, and notice what you feel under your fingers. Don't try to change or force anything. Simply breathe and let your fingers sink in, reach under, and scoop up towards your navel.

Next, repeat the scooping motion under your left ribcage. Starting at the outer edge of your ribcage, let your fingers sink in and reach under the lower ribs. Breathe out and stretch the tissue down towards your navel. Keep your fingers soft but firm as you sink in and scoop the tissue. The next time, let your fingers sink in a little more towards your midline. Keep scooping tissue down towards the navel, each time starting out a little closer to the sternum. Then scoop directly under the sternum, sinking in and stretching the tissue down towards the navel. Do that a few times and then continue to make your way down the right ribcage. Take your time with each spot, and feel free to stretch the tissue repeatedly in areas that are tight or tender. As always, remember to be gentle and compassionate with yourself. Keep your fingers soft as you sink in and reach under, and then stretch the tissue towards the navel. Keep your breathing soft and slow. Work all the way to the outer edge of the right ribcage, and then continue on your way down, now scooping the tissue at the outer right hipbone. Once again, allow your fingers to sink in and, with your exhalation, reach under and stretch towards the navel. Keep on working your way towards the pubic bone, and then scoop directly under the pubic bone. Only women with an IUD should stop right at the inner edge of the hipbone.

Large Intestine

Stay at your lower right belly. Place one hand on top of the other, fingers over fingers, halfway between your belly button and your hipbone. Let your fingers sink in until they feel just anchored in the tissue. Stay at that depth and make three to four small clockwise circles. Keep your fingers soft and slightly bend back. Release and move up a little higher toward your ribcage. We are now working in a clockwise direction around the abdomen, which mirrors the natural flow of the colon. So, let your fingers sink in again and make another three to four small clockwise circles at that depth. You want to use a firm touch and yet not push beyond your body's natural resistance. Don't force your way in, since that will cause the colon to contract. Circle up your ascending colon, and once you are at your lower ribcage, change direction to circle across your abdomen from the right to the left. You are now following the path of the transverse colon. Imagine the transverse colon shaped like a hammock. Rather than going in a straight line across your belly, it dips down slightly. Depending on the individual, the transverse colon might go as low as or even lower than the belly button. Keep sinking in with your fingers, making small circles as you move across your belly, following the slight curve that drops lower in the middle and then back up again to the lower ribcage on the left. From there, slowly work your way down to the left hipbone. You are now on your descending colon. Spot after spot, let your fingers sink in and, at that depth, make three

to four small circles. Once you are at the left hipbone, circle a little up towards the middle along the sigmoid colon and then down towards the pubic bone.

Keep on going around the entire colon two or three times. Remember to always let your fingers sink in and anchor into the tissue before circling. Keep breathing softly and slowly, expanding the belly and chest as you inhale, letting the chest and belly fall back as you exhale. Take your time working your way along the path of the large intestine. This time around, stay longer at any point that is tight or hard or tender. Slow down, and use your breath and awareness to make contact with whatever you are feeling. Make sure to stay with a moderate pressure and to breathe into the area you are working on. The deeper you want to reach into your abdomen, the softer and slower your touch needs to be. If you feel pain, back off a little and slow down. Be patient and gentle with yourself, and breathe deeply and completely. Track the sensations in your body and the feelings you might be experiencing. As much as you can, accept whatever you sense and feel with an open mind and a willingness to let it be whatever it is rather than trying to change it. The pain may or may not disappear today. Give it time and return again tomorrow.

Keep on going along the path of the large intestine, following your ascending colon to the upper right, going across the belly to the left along the transverse colon – remember the slight curve toward the belly button – down the left along the descending colon, a little up towards the middle along the sigmoid colon and finally down towards the pubic bone.

Circle each spot on the colon's path, and make sure to bring your breath to every area you are working on. Many of us have a tendency to push hard when coming across an area that is tight. The colon does not respond favorably to that. It retreats and contracts when met with too much force. For the colon to open up, it needs patience and gentleness. So, as much as you can, allow yourself to listen to your body without judgment and simply be present with the sensations and feelings you are experiencing. Make sure the massage feels good. If it doesn't feel good, slow down and be even softer in your touch.

After opening up the colon with small circles, use now the open palms of your hands to make big clockwise circles over your entire abdomen. Some people like having their palms in a v-shape, others have one palm on top of the other. However you like to position your hands, massage your whole belly with an easy flowing circle. You can do this over your shirt or directly on the skin, whichever feels best to you. Use moderate pressure and let the clockwise circles flow seamlessly around your belly. Enjoy the soothing quality of this movement and allow yourself to relax into the sensations. Keep breathing deeply and gently throughout this final movement of the abdominal massage. As much as you can, take pleasure in the comfort and the ease of the movement. Keep on circling for a while in a clockwise direction and simply enjoy.

Resting

Whenever you are ready, place one palm on your lower belly and the other slightly above your navel for a final relaxation. Feel the abdomen and chest rise and fall with each easy breath, and feel the warmth coming from your hands into your abdomen. Take some time to enjoy that feeling of warmth, and allow yourself to deeply relax.

C.3 Class Notes Week 2 – Organ Functions

Liver

Functions:

- detoxification
- protein synthesis
- production of bile (aids digestion via the emulsification of fats)

Anatomy:

- weighs between 3-4 pounds – largest internal organ in body
- located in right upper quadrant of abdominal cavity, just below the diaphragm
- it overlies the gallbladder

Gallbladder

Functions:

- aids in fat digestion
- concentrates bile produced by the liver – can store about 50ml (1.7 oz)
- bile gets released into the duodenum

Anatomy

- 3 inches x 1.5 inches
- Behind the liver

Stomach

Functions:

- Digestion of food
- Proteases (protein digesting enzymes)
- hydrochloric acid (kills bacteria and provides acid pH)

Anatomy:

- Located between the esophagus and the small intestine
- Left upper part of the abdominal cavity, top touches diaphragm

Pancreas

Functions:

- endocrine gland (produces hormones such as insulin, glucagon, and somatostatin)
- digestive organ (secretes pancreatic juice and digestive enzymes that help break down carbohydrates, proteins, and fat)

Anatomy:

- lies behind the stomach

Spleen

Functions:

- filters red blood cells (quality control)
- stores blood (emergency supply)
- produces white blood cell lymphocytes (immune function)

Anatomy:

- upper left quadrant of the abdomen (in front of 9th-12th rib)
- about 4.5 inches in length, weighs between 5-7oz

Small Intestine

Functions:

- absorption of nutrients

Anatomy:

- in between stomach and large intestine
- about 22-23 feet in length, about 2.5-3 inches in diameter
- three parts; duodenum, jejunum, and ileum

Large Intestine

Functions:

- bacteria: fermentation and absorption of vitamin (vit K, B12, Thiamine, Riboflavin)
- fluid balance: 2 gallon of water through colon every day – 7 tablespoons get expelled with feces - compaction (water absorption)
- peristalsis, storage and expulsion of fecal matter

Anatomy:

- about 4-5 feet in length
- cecum, colon (ascending, transverse, descending, sigmoid), rectum, anal canal

Kidneys

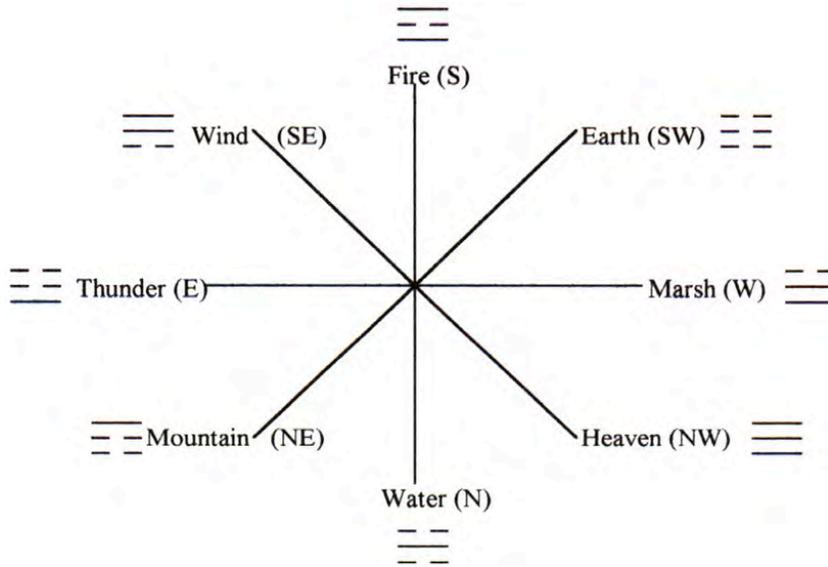
Functions:

- filter of blood and excretion of urine (wastes go to bladder)
- regulates blood pressure
- secretes hormones

Anatomy:

- back of abdominal cavity, on each side of the spine (right kidney lower than left)

C.4 Class Notes Week 3 - Five Elements and Abdominal Massage



☰ Yang
 ☷ Yin

Earth: Absolute Yin - for great flexibility and following
 Mountain: Earth attributes of solidity and stability

Lake (Marsh): Metal attributes of playfulness and lightness of being
 Heaven: Metal attributes of absolute yang, constant improvement and evolution

Water: Extreme Yin for attention, alertness, and being essential

Thunder: Wood attributes for creative energy and inner silence
 Wind: Wood attributes for penetrating power and going deep

Fire: Extreme Yang for clarity and being consistent

- Absolute Yang – heaven – light – everywhere yet can't see it – governor channel
- Absolute Yin – earth – gravity – everywhere yet can't see it – functional channel
- Fire and water are a state, wood and metal are a process
- Wood, fire, metal, water are elemental forces, not the elements that we talk about
- Seasons – earth is always the week in between summer, fall, winter, and spring

Earth Element

Earth gives birth to metal, controls water, and is under the dominance of wood

Direction is the center – Indian Summer is the season (harvest) and in between seasons

- center of gravity
- circles and cycles
- stability
- principle of harmony, nurturing, support, and satisfaction.

Physical Aspects

Stomach – digestive system – Yang – 7am to 9am – head to foot

Spleen Pancreas – Yin – 9am to 11am – foot to chest

Digestion; Stores and cleanses the blood

Muscles and flesh and fasciae – helps you to relax and be at ease

Mouth (for taste) and lips

Lymphatic system (recycles)

Mental Aspects

Practicality – Harmony - Cleverness

Emotional Aspects

Positive emotions when Chi is healthy and abundant:

- Satisfaction - Fairness - Sympathy
- Comfort - Openness

Negative emotions when chi is restricted

- Anxiety
- Worry

Intelligence: Practical intelligence; manifestation; having perspective; good judgment; knowing what works; ability to integrate

When our Earth Chi is harmonious and healthy, we feel supported by existence and generally confident and at ease, comfortable in life. We are solidly anchored in pragmatic reality; we are practical and find it easy to be present, free, receptive and accepting

When our Earth Chi is out of balance, we feel ungrounded and uprooted, never satisfied, always in doubt, and do not even trust ourselves. We might easily feel abandoned, out of place, awkward, self-conscious, and ill at ease.

Sound: whoooooooooo

Smell: Fragrant/Sweet

Flavor: Sweet

Color: Yellow

Climate: Damp, humid

Body Fluid: Saliva

Metal Element

Metal feeds water, cuts wood, and is under the control of fire

Western direction and fall season

- cooling down phase from fire to water
- everything that condenses, concentrates, conserves, shrinks
- you work metal. It grows through your own efforts going through life.
- minerals of the earth - provide fuel, material for structural strength, gems for beauty
- strength, substance, structure, and cultivation/self-cultivation. It is about looking good, appearance, capacity to feel good about yourself
- ability to be in touch, to communicate.

Physical Aspects

Lungs – respiratory system – Yin – 3am to 5am – chest to hand

Large Intestines – elimination – Yang – 5am to 7am – hand to head

Skin, body hair, and fasciae, smell (nose) and touch

Mental Aspects

Emotional Maturity – Sensitivity - Elegance

Emotional Aspects

Positive emotions when Chi is healthy and abundant:

- Courage - pride
- Honesty - uprightnes

Negative emotions when chi is restricted

- sadness - depression
- grief - contracting

Intelligence: Emotional intelligence; maturity; to be in touch with yourself; true honesty; cuts through things

Weak metal brings a propensity for sorrow, nostalgia, and being taciturn. Extreme grief, especially when it is not validated, can cause lung, skin, or colon problems.

Deficient metal chi often means that we lose touch, are not able to know our feelings and unable to care about the feelings of others. Not being able to feel can lead us into a state of depression. Feelings are proportional to our ability to breathe – breathing fully allows us to get in touch with ourselves. Within our breath, we hold the lock and key to our healing process.

Sound: sssssssssssssssss

Smell: rotten

Flavor: Pungent and spicy

Color: white

Climate: dry

Body Fluid: mucus

Water Element

Water nourishes wood, controls fire (extinguishes it), and is contained by Earth
Water is manifested in the northern direction and the winter season.

- most essential element for life
- cold, hidden, fluid, and soft - takes the shape of whatever it contains
- extremely gentle yet all powerful
- life force, our force of creativity, originality; Intention; willpower
- instinct, willpower, vision, dreams; ambition, new ideas

Physical Aspects

Bladder – Yang – 3pm to 5pm – head to foot

Kidney – Yin – 5pm to 7pm – foot to chest

Urinary and reproductive system

Bone, marrow, and teeth

Ears – our ability to hear and listen

Mental Aspects

Creativity – Instinct - Vision

In water, we find our dreams

Emotional Aspects

Positive emotions when Chi is healthy and abundant:

- gentleness - calm/peacefulness
- Caring

Negative emotions when chi is restricted

- Fear - terror

Intelligence: instinct - everything you know without learning

When water is abundant

- new ideas come easily to us
- we trust our instincts
- we feel strong and powerful

When our water is overstressed, we might get fatigued and our kidneys can be affected, our ears, the health of our bones, gums, and teeth. We are easily afraid and lose creativity and drive.

Sound: chiuuuuuu

Smell: putrid

Flavor: Salty

Color: blue

Climate: cold

Body Fluid: urine

Wood Element

Wood feeds fire, controls earth, and is controlled by metal.

Manifested in the eastern direction (rising sun) and the spring season.

- Growth, development, and rapid expansion
- energy that instigates movement – the force of motion and process
- abundance and generosity.

Physical Aspects

Liver (stores and filters the blood, nerve control) - 1am to 3am

Gall bladder - 11pm to 1am

Nervous system; headaches; eyes; throat; teeth (pathway of liver meridian)

Eyes (sight)

Tendons; nails

Mental Aspects

Mental intelligence

Problem solving

Strategy

Emotional Aspects

Positive emotions when Chi is healthy and abundant:

- kindness
- generosity

Negative emotions when chi is restricted

- anger
- aggression

Intelligence: Rational thinking; knowledge. The power of thinking. We conceive ideas with water and develop them into theories, plans, and strategies with wood.

When our wood element is impaired, we might lose control of our nerves, feel aggressive and angry, and our vision decreases. We might lose our appetite and have a hard time digestion our food and emotions. In order to help reduce wood: breathe

When our wood chi is healthy and abundant, we have clarity of mind and a high power of focus.

Sound: shhhhhhhhhhhhhhhhhhh

Smell: rancid

Flavor: Sour

Color: green

Climate: windy

Body Fluid: tears

Fire Element

Fire nurtures earth, controls metal, and is controlled by water

Fire is manifested in the southern direction and the summer season.

- Dynamic, moving, full of spark, vitality, radiant, outgoing, expansive.
- refers to life in some way - it is active, it rises up – its essence is alive
- contains our spirit and governs spirituality - being able to be guided; getting in touch with life purpose. It is about truth and honesty – speaking from your heart
- responsible for our enjoyment of life. That joy feeds spirit

Physical Aspects

A) Cardiovascular Fire

Heart – yin – chest to hand – 11am to 1pm

Small Intestines – Yang – hand to head – 1pm to 3pm

Heart and arteries; Blood vessels; vascular system

Tongue (for good taste) – nourishes the spirit

B) Endocrine Fire

Heart controller (pericardium) – yin – 7pm to 9pm – chest to hand

Triple burner – yang – 9pm to 11pm – hand to head

Endocrine glands, hormones

Tongue (for speech) - communication

Mental Aspects

Spirit – Wisdom Guidance

Emotional Aspects

Positive emotions when Chi is healthy and abundant:

- Happiness - respect
- joy

Negative emotions when chi is restricted

- hastiness - impatience - hatred
- rage - heat

Intelligence: Intuition –you know without remembering Spirit

When our fire chi is weak, we lose faith in ourselves, in others, and in life in general. We lack enthusiasm and direction in life. We are unable to reach out and connect with others or communicate our inner feelings, and we are unable to help anyone else.

When our fire chi is healthy, we have high spirit, intuition and enthusiasm for life guide us, and we feel joy and a strong sense of purpose in life

Sound: hawwwww (cardiovascular fire) - heeee (endocrine fire)

Smell: scorched Flavor: bitter

Color: red Climate: heat Body Fluid: sweat

C.5 Class Notes Week 4 – Abdomen and Energy Centers

Western world

- tight flat belly as beauty ideal
- hourglass figure (women) and V-shape men (upside down triangle)
- highly cerebral – favors intellect, logic, rational decision making
- main focus on heart and crown in spirituality

All of this leads to a very top-heavy image, a movement away from abdomen

Eastern Philosophy

- lower belly source of physical, emotional, and spiritual vitality
- focus on abdomen in healing, contemplative practices, dance, and martial arts
- relaxed and protruding belly favored
 - o considered a sign of strength, health, maturity, balance, groundedness, and a tranquil mind
- open abdomen thought to be prerequisite for health, a balanced life, and spiritual growth
- sacred energy center

Lower Abdomen

- location of powerful energy centers
 - o hara (Japan)
 - o lower and middle dantian (China)
 - o three lower chakras (India)
- all meridians pass through the lower abdomen in superficial or deep pathways, distributing qi and connecting the abdominal center with every part of the body
- abdominal breathing – brings vital energy into the body. Essential role in spiritual practices. The word for breath and spirit used in many cultures interchangeably, such as prana, qi, psyche, and spirit.
- Umbilicus: seen as the microcosmic reflection of the center of the heavens, the doorway between the physical and the energy body since it is thought to receive universal energies and transform them into life force energy (Taoism)

Dantian (China, Dan red, cinnabar, internal elixir / Tian field)

- lower dantian: two fingers below the navel and deep within the belly
- middle dantian: solar plexus
- upper dantian: between the eyebrows.

The three energy centers are used in Taoist meditation practices for the process of gathering, storing, concentrating, refining, transmuting, and circulating qi.

Internal alchemical Taoism is the practice of opening up the centers from the bottom up. Abdominal massage, together with meditation, qigong, and martial arts, is utilized in the beginning stages of alchemical Taoism to support the process of “refining the vital energy for the transmutation of spirit energy.”

Hara (Japan, belly)

- considered to be physical, psychological, and spiritual center of the body
- central point corresponds to the center point of the lower dantian
- a strong hara is thought to be the prerequisite for spiritual growth since the upper heaven centers are viewed as opening only when the hara is cultivated

Chakra (India, wheel)

- system of seven major chakras located along the spine from the tailbone to the crown of the head.
- energy vortexes are thought to be connected with each other and with every point in the physical body
- each chakra is said to contain a specific physical, emotional, intellectual, and spiritual component
- Carolyn Myss: individual chakras respond to certain spiritual lessons and life issues, with the whole system reflecting a natural cycle of maturation
- chakras are thought to work together with the endocrine glands to transform universal life force energy into physical energy, which is then distributed to cells, tissues, and organ systems
- lower three chakras within the abdomen are said to contain the instinctual energies of the physical, emotional, and mental bodies
- first chakra:
 - o located at the base of the spine close to the anus
 - o represents the earth element
 - o relates to primary matters of life, including survival needs, consciousness of the physical body, and a groundedness in the physical world
 - o affects the overall strength of the body and the health of the legs, pelvis, and the immune system
 - o Besides immune and health benefits, a healthy first chakra might support a person in establishing a secure base and solid grounding
 - o Abdominal massage accesses the first chakra by deep diaphragmatic breathing with an awareness of pelvic relaxation, as well as by manual work deep within the pelvic cavity.
 - o It might also induce the powerful Kundalini energy at the base of the spine to rise upwards through the energy centers, energizing and clearing each chakra along the way.
- second chakra:
 - o located below the navel, in the same position as the hara and lower dantian
 - o connected to the water element and a person's emotional identity
 - o lessons relate to sexuality, physical desire, and personal and working relationships
 - o second chakra is said to affect the health of the gonads and sexual organs, lower intestines, lumbar spine, and bladder
 - o Working on the second chakra through conscious breathing and abdominal massage might additionally support a person's capacity for creating healthy relationships

- third chakra:
 - located at the solar plexus, one of the neural centers of the enteric nervous system
 - Represents the fire element, connected to the mental body
 - Rosalyn Bruyere: third chakra can be an origin of thoughts, opinions, and judgments (Enteric NS – second brain)
 - center of intuition that assists with daily practical matters
 - lessons of the third chakra evolve around personality, self-esteem, integrity, personal power, the process of individuation, and the maturation of the ego
 - affects the health of the adrenals, abdomen, upper intestines, gallbladder, kidneys, liver, pancreas, spleen, and middle spinal area
 - Supporting the health of this chakra through diaphragmatic breathing and abdominal massage might additionally build ego strength, vitality, and a healthy sense of power
 - might support an increased awareness of gut intuition. The wisdom of the belly can express itself as an inner knowing or as visceral sensations

Being closest to the earth, the lower three chakras seem to deal with the more practical matters of survival, movement, and action

Since disorders in the body can reflect energetic blockages, abdominal self-massage might support an unrestricted energy flow throughout the three lower chakras which might in turn enhance a person's physical and emotional well-being and strengthen the capacity for spiritual development.