

Daily Practice of Qi Gong and Tai Chi  
Positively Impact Adults Age 52 to 70 years  
With Chronic Low Back Pain

Julie Viellieu

California Institute of Integral Studies

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**Proposed Title:**

Daily Practice of qigong and tai chi positively impact adults age 52 to 70 years with chronic low back pain.

**Proposed Research Question:**

Do adults age 52 to 70 with chronic low back pain experience benefits from the daily practice of qigong and tai chi for three months?

**Proposed Hypothesis:**

Daily practice of qigong and tai chi promote a positive impact on adults age 52 to 70 years with chronic low back pain.

**Defined Terms:**

**Qigong:** Working with life energy, learning how to control the flow and distribution of qi to improve the health and harmony of the human mind.

**Tai Chi:** Low-pact exercise that demonstrates harmony of mind and body and the qi of the universe, moving meditation.

**Tai Chi Form:** Choreographed slow movements that contain a wide variety of motor skills with respect to footwork and range and direction of motion.

**Qi or Chi:** can be described as life force or vital energy.

**TCM:** Traditional Chinese Medicine originated in ancient China and has evolved over thousands of years.

**CAM:** Complimentary Alternative Medicine is the term for medical products and practices that are not part of standard medical care.

**Low Back Pain:** any back pain between the ribs and the top of the leg, from any cause.

### Abstract

**Purpose:** This mixed-methods study proposes to investigate whether the daily practice of qigong and bi-weekly tai chi movement classes for 12 weeks can positively impact adults age 52 to 70 years with low back pain. With the increasing population of the aging baby boomer population (those born between 1946-1964) of 77 million in the United States, the high prevalence of LBP threatens to strain the health care system. Investigating the positive impacts of CAM mind-body therapies such as qigong and tai chi on LBP is critical for this aging population.

**Design and Method:** 12 adults, ages 52-70, will be asked to participate in a 12 week, qigong and tai chi movement study. Quantitative measurement, The Roland-Morris Disability scale, and qualitative surveys will be used to measure pain, symptoms, and the positive impact of the 12 study participants.

**Results:** Findings from this study will hopefully show that participants suffering from LBP experience positive impact practicing the energy modalities of qigong and tai chi which create a level of satisfaction that translates as well-being.

## Introduction

According to Borenstein and Calin (2012), “The symptom of low back pain (LBP) is second only to the common cold, the most common affliction of mankind” (p. 9). In 70% of cases, LBP has no obvious etiology or pathogenesis. So what makes the back hurt? Most back pain is actually muscular or ligamentous in origin rather than skeletal. According to researchers patients with chronic LBP who prove most challenging to clinicians are those whose physical evaluation, imaging, and other studies are negative or unrevealing (Borenstein & Calin, 2012). Gunner Andersson states in his review of LBP that the prevalence of chronic LBP should be placed in the context of the prevalence of LBP in general. Andersson’s many research studies attest to the high frequency of back complaints in society. “70–85% of all people have back pain at some time in life”. “The annual prevalence of LBP ranges from 15% to 45%” (Andersson, 1999, p. 581). LBP is an important public health problem in all industrialized nations. Although most people appear to recover quickly from an episode of LBP, disability resulting from LBP is more common than any other cause of activity limitation in adults aged less than 45 years and second only to arthritis in people aged 45 to 65 years (Loney & Startford, 1999). LBP is the second most frequent reason for visits to the physician, the fifth-ranking cause of admission to hospital, and the third most common cause of surgical procedures. About 2% of the US workforce are compensated for back injuries each year (Andersson, 1999). The extent and impact of LBP on both qualities of life and the health care economy are significant.

According to the US Census Bureau, the population of Baby Boomers (those born between 1946-1964) is approximately 77 million in the US, they are the focus of this research (Colby & Ortman, 2014). The prevalence of LBP is increasing. To the extent that the growth in

LBP is caused, in part, by this large Baby Boomer aging population, the growth will likely continue or accelerate. As stated in the research by Smith, relatively high cost per adult with LBP, total expenditures associated with LBP will correspondingly accelerate under existing treatment patterns. This carries implications for prioritizing health policy, clinical practice, and research efforts to improve care outcomes, costs, and cost-effectiveness and for health workforce planning. The potential impact of aging boomers on the prevalence and chronicity of LBP threatens to strain the US health care system. It is important for policymakers, payers, and other stakeholders to understand the effects of the growing LBP population and its impending demands (Smith, Davis, Stano, & Whedon, 2013).

Conventional treatments for LBP, such as medications and surgery, have demonstrated some efficacy. Dr. Manu Matthews describes how LBP management typically consists of prescription medications or provider based, behavioral, or interventional procedures which are often ineffective, may be costly, and can be associated with undesirable side effects. Pharmacologic interventions encompass the most widely used modality in the treatment of LBP. A variety of classes of agents is available, nonsteroidal anti-inflammatory agents, acetaminophen, antidepressants, antiepileptics and opioids. Non-biologic based treatments play an important role in achieving optimum outcomes for LBP. Some traditional therapies include physical therapy and occupational therapy. These treatments for LBP are not always effective and even have some serious adverse effects. Consequently, to find some more effective therapeutic methods, many individuals have turned their attention to some other treatments, such as complementary and alternative medicine (CAM).

Matthews describes how for decades, many of these CAM modalities were viewed as being outside the mainstream of treatment. Increasing evidence of the effectiveness of these

therapies has pushed more patients and providers toward acknowledging their utility, thereby moving them into the mainstream (Matthews, 2014). Although CAM may also have some adverse effects of itself, given the numerous therapeutic methods of CAM and its positive effectiveness to some extent, a growing number of researchers have focused on various CAM therapies, such as qi gong and tai chi. Traditional Chinese Medicine (TCM) has been used to treat various diseases in China for more than 2000 years, and it still remains the first choice of treatment for many people. However, the different models of thought are that the foundations of TCM and modern science are not compatible, hindering the spread of TCM worldwide. Nevertheless, there are many articles published in various scientific journals that have attempted to explain some phenomena and mechanisms of treatments in TCM from the perspective of modern medicine (Qi-ling, Tuan-mao, Liang, Fu, & Yin-gang, 2015).

Health is dependent on the proper function of the 20 energy channels in the body for which our life energy flows. Both tai chi and qigong combine a series of fluid movements with meditative attention to breath and body. Qigong, like tai chi, has origins in martial arts but emphasizes a subtle, less dancelike movement (Yang, 2005). Though Western medicine is careful to base its diagnostic and treatment practices on things that can be predicted and measured, holistic healing systems such as qigong and tai chi maintain a belief in focusing on concepts such as chi or qi, energy systems that are not easy to prove and measure. One or more of these energy channels in the body may be blocked by emotional stress, bad posture, injury, and LBP, treatments such as tai chi and qigong may be used in order to restore the steady flow of energy in all of these channels. Practitioners may be able to restore their qi through a combination of low-impact choreographed movements called tai chi and meditative focus movements called qigong (Vincent, Hill, Kruk, Cha, & Bauer, 2010).

In their study Lee, Crawford and Hickey found mind-body therapies promote stress reduction and well-being by changing the manner in which individuals respond to their environmental and internal stressors. They state they can be used to treat and/or prevent a variety of conditions including LBP disorders. In 2007, approximately 38% of American adults and 12% of children were using some form of CAM, most commonly for musculoskeletal conditions.

Misinformation about LBP frequently leads to kinesophobia (fear of movement). Patients with LBP often equate hurt with harm and take an increasingly sedentary lifestyle, leading to splinting of the LBP. This process of splinting inadvertently leads to deconditioning, wasting of muscles, and weakening of ligaments and bones, making any attempts at remobilization more challenging. Reduced activity and self-efficacy lead to loss of self-esteem, changes in the patient's role in family and society and leading to psychological sequelae like depression, anxiety, and anger (Matthews, 2014).

Researcher Wang and his team state psychosocial well-being are essential to a person's quality of life, and the improvement of mental wellness is critical to individuals, communities, and societies (Wang, et al., 2009). This research seeks to investigate whether people's psychosocial well-being can be positively impacted by the presence of pain with the mind-body practices of qigong and tai chi.

The objective of this research is to investigate the positive impact on LBP with the energy moving modalities of tai chi and qigong practiced daily for 12 weeks. Previous studies show high satisfaction with the modalities of tai chi and qigong but no change in perceived LBP. "Although older adults were highly satisfied with the qigong classes, participation in a 3-month program did not improve chronic LBP, back function, and quality of life during a 3 or 6-month period" (Teut, Knilli, Daus, Roll, & Witt, 2016, p. 804). This mixed methods approach seeks to

understand positive affect using qualitative as well as quantitative research to better understand what adults suffering from LBP experience as satisfaction when they receive nonpharmacological interventions such as tai chi and qi gong.

### **Method**

In this mixed-methods study, 12 participants age 52-70 years will be asked to practice a simple daily 15-20 minute qigong meditative movement program for a period of 12 weeks. In addition, twice per week for 12 weeks, participants will practice 90 minutes of tai chi with Master Malcolm Dean at the San Francisco Hunyuan Tai Chi Academy.

Once selected the 12 study participants age 52-70 years with LBP, will attend a 3-hour evening orientation presented at the San Francisco Hunyuan Tai Chi Academy by the researcher and Master Dean. The researcher will provide an overview of qi gong and tai chi and outline the details of the study in a power point presentation. Master Dean will demonstrate the qi gong home practice and the tai chi form. The participants will be provided with free instructional materials to take home that will guide them through their daily qigong home practice and logs to fill out each week. The participants will be asked to record their active qigong practice times. Participants will be asked to avoid concurrent health care practices such as cleansing, or fasting, or practicing reiki, healing touch, yoga or any related energy modality during this study. Participants will attend a summative group meeting after pre-determined tai chi sessions to submit qigong practice logs and complete study surveys at four intervals, first week, 4 weeks, 8 weeks, and 12 weeks respectively.

Participants will be referred from the following San Francisco health care providers:



Dr. Ricky Fishman, Holistic Chiropractor, San Francisco

San Francisco Orthopedic Group

Center for Pain Management San Francisco

Richard A. Johns Physical Therapist, San Francisco

Participants eligible for the study are adults age 52-70 years with LBP for more than 1 year recommended from above-mentioned orthopedic groups, pain management clinics, physical medicine rehabilitative clinics and chiropractic clinics (clinical diagnosis of LBP). All participants must commit to both the daily qigong as well as the tai chi classes for 12 weeks.

Exclusion criteria are: acute disc prolapse or protrusion with acute neurological symptoms within the last 3 months, severe psychiatric disease precluding participation in study, pain due to cancerous effects on bones, use of pain medication that works for the central nervous system pain agents (ex. opioids), drug and/or alcohol addiction, concurrent participation in another study, planned participation in other therapies within the study duration.

### **Instruments**

The quantitative measure used in the study will be the Roland-Morris Low Back Pain and Disability Questionnaire (RDQ) at the beginning and end of the 3-month study (Rowland & Morris, 1983). The RDQ is one of the most widely used questionnaires which has been designed for back pain. It has been shown to yield reliable measurements, which are valid for inferring the level of disability and to be sensitive to change over time for groups of patients with low back pain. The RDQ is a self-administered disability questionnaire consisting of 24 items (*see appendix*). These 24 questions are related specifically to physical functions that are likely to be affected by low back pain. Each item is qualified with the phrase “because of my back pain” to

distinguish back pain disability from disability due to other causes—a distinction that patients are in general able to make without difficulty. Patients completing the RDQ are asked to place a check mark beside a statement if it applies to them that day.

The qualitative measure will be a symptom survey developed by the researcher to assess changes in patient's symptom variables (sleep, concentration, decision making, balance, stress reduction, and relaxation) from week 1, week 4, week 8 and week 12. Subjects will rate their symptoms as follows: yes=1, no=2, and no change=3 (see appendix). Subjects will be given the survey at the end of tai chi class and will not have access to their previous reports. Descriptive statistics of baseline will be compiled to characterize the patient's backgrounds, (age, sex, educational level, marital status, occupation, and medication usage). Data analysis will be organized into physical pain, related symptom variables, and practice log categories.

The researcher will tally the scores for each survey and compare the scores as the study progresses. The researcher will be looking at the perception of pain and how it relates to positive well-being using contingency tables and mosaic plot figures to present data. At the end of the study, the hope is that the quantitative scores indicating LBP will decrease. The qualitative scores from the survey hope to indicate a more positive impact on the patient and well-being is increased even if pain is unchanged.

### **Ethical Considerations**

Potential participants who are recommended by the listed health care providers for the study will be contacted by the researcher to schedule a pre-study interview. Participants will be screened for full participation in the study with a commitment to both the home qigong

practice and the twice-weekly tai chi classes. Any participant who cannot commit to the schedule will be excluded from the study.

### **Potential Impact and Personal Significance**

I wanted to focus my research on my target market the Baby Boomer population and the practice of the energy modalities of qigong and tai chi. The growing incidence of chronic disease in this population and finding new possibilities and new ways to heal ourselves is where my passion lies. As a health coach, most of my clients come to me with feelings of low energy. There are many ways to start on a journey to healing oneself, new ways of body movement that connect us with our bodies and minds is a great place to start. We have become a very sedentary nation due to the amazing technology at our fingertips, learning how to balance one's life in integrative ways is what I want to share with the world. There are so many possibilities, age should not be a reason to stop growing and expanding. There are many ways to live and flourish. I have been practicing qigong and tai chi for over a year and am fascinated by its teaching of the energy body and how we can start to open to this new concept here in the west. What is energy? How do you lose it? How do you regain it? This is a new frontier and there is new research coming out every day exploring ways to understand things we do not know how to measure. My interest is in understanding how we can literally move our physical bodies into a new understanding where pain takes a back seat to being satisfied with life with a new more open way of understanding ourselves.

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## The Roland-Morris Low Back Pain and Disability Questionnaire

Patient name: File # \_\_\_\_\_ Date: Please read instructions: When your back hurts, you may find it difficult to do some of the things you normally do. Mark only the sentences that describe you today.

I stay at home most of the time because of my back.

I change position frequently to try to get my back comfortable.

I walk more slowly than usual because of my back.

Because of my back, I am not doing any jobs that I usually do around the house.

Because of my back, I use a handrail to get upstairs.

Because of my back, I lie down to rest more often.

Because of my back, I have to hold on to something to get out of an easy chair.

Because of my back, I try to get other people to do things for me.

I get dressed more slowly than usual because of my back.

I only stand up for short periods of time because of my back.

Because of my back, I try not to bend or kneel down.

I find it difficult to get out of a chair because of my back.

My back is painful almost all of the time.

I find it difficult to turn over in bed because of my back.

My appetite is not very good because of my back.

I have trouble putting on my sock (or stockings) because of the pain in my back.

I can only walk short distances because of my back pain.

I sleep less well because of my back.

Because of my back pain, I get dressed with the help of someone else.

I sit down for most of the day because of my back.

I avoid heavy jobs around the house because of my back.

Because of back pain, I am more irritable and bad tempered with people than usual.

Because of my back, I go upstairs more slowly than usual.

I stay in bed most of the time because of my back.

Instructions: 1. The patient is instructed to put a mark next to each appropriate statement.

2. The total number of marked statements are added by the clinician. Unlike the authors of the Oswestry Disability Questionnaire, Roland and Morris did not provide descriptions of the varying degrees of disability (e.g., 40%-60% is severe disability).

3. Clinical improvement over time can be graded based on the analysis of serial questionnaire scores. If, for example, at the beginning of treatment, a patient's score was 12 and, at the conclusion of treatment, her score was 2 (10 points of improvement), we would calculate an 83% ( $10/12 \times 100$ ) improvement.

## Questions of Satisfaction Scale

- |   |     |    |    |        |
|---|-----|----|----|--------|
| 1. Has this movement helped me relax in my body?                | Yes | No | No | Change |
| 2. Has this movement helped me better understand my body?       | Yes | No | No | Change |
| 3. Do I have a better range of motion with this movement?       | Yes | No | No | Change |
| 4. Has this movement brought more awareness to my body?         | Yes | No | No | Change |
| 5. Do I have a better sense of my energy with this movement?    | Yes | No | No | Change |
| 6. Do I have better balance with this movement?                 | Yes | No | No | Change |
| 7. Do I have better concentration with this movement?           | Yes | No | No | Change |
| 8. Do I have a new sense of calm in my body with this movement? | Yes | No | No | Change |
| 9. Am I more aware of my breathing with this movement?          | Yes | No | No | Change |
| 10. Has this movement enhanced my sleep                         | Yes | No | No | Change |

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