CURRICULUM VITAE

Name: **Gloria Y. Yeh, MD, MPH**

Education:

1993	BS	Mechanical Engineering	Massachusetts Institute of Technology
1997	MD	Medicine	University of Maryland School of Medicine
2002	MPH	Clinical Effectiveness	Harvard School of Public Health

Postdoctoral Training:

1997-1998	Intern, Internal Medicine, Boston University Medical Center
1998-2000	Resident, Internal Medicine, Boston University Medical Center
2000-2003	Research Fellow, General Medicine/Complementary, Alternative Medicine Faculty Development and Fellowship Program, Beth Israel Deaconess Medical Center and Harvard Medical School

Faculty Academic Appointments:

1997-2000	Teaching Associate in Medicine, Boston University
2003-2008	Instructor in Medicine, Harvard Medical School
2008-	Assistant Professor of Medicine, Harvard Medical School

Appointments at Hospitals/Affiliated Institutions:

Past

1999-2000	Urgent Care Physician, Internal Medicine, East Boston Neighborhood Health Center
2000-2003	Associate Staff Physician, General Medicine, Beth Israel Deaconess Medical Center
2001-2003	Staff Physician, Marino Center for Progressive Health, Cambridge, MA

Current

2003-	Courtesy Staff Physician, General Medicine, Beth Israel Deaconess Medical Center
2003-	Faculty, Harvard Medical School Osher Research Center

Other Professional Positions:

2000-2001	Covering/Moonlighting Physician, Healthcare Associates, Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center
2001-2004	Fellow Physician, General Internal Medicine and Integrative Care, Marino Center for Progressive Health, Cambridge, MA
2006-	Moonlighting Physician/Resident Preceptor, Healthcare Associates, Beth Israel Deaconess Medical Center

Major Administrative Leadership Positions:

2000 Chief Resident, Boston University Medicine Residency Program

Committee Service:

University of Maryland School of Medicine

1995 Baltimore Holistic Health Day Steering Committee, Executive Member
1996 School of Medicine Faculty Curriculum Committee, Student Representative
1996-1997 School of Medicine Student Government Executive Committee, Elected Member

Boston Medical Center

1997-2000 Committee of Interns and Residents, Local and Regional Chapter, Member

Harvard Medical School

2003- Research and Education Steering Committee, Member
Division for Research & Education in Complementary / Integrative Medical Therapies
2005- Asian Medicine and Healing Program, Osher Research Center, Core Founding Member
2006- Research Steering Committee, Member, Brigham and Women's Hospital and Harvard Medical School Osher Institute, Integrative Care Clinic

Regional/National

1999-2000 Associate's Council Executive Committee, Member, American College of Physicians
2002-2005 National Advisory Committee, Founding Member, Center for Research Training in Complementary and Alternative Medicine, Morgan State University Public Health Program
2005 Scientific Review Committee, Member, North American Research Conference on Complementary and Integrative Medicine, Consortium of Academic Health Centers for Integrative Medicine
2006 National Expert Panel for Tai Chi Research, University of Illinois
2006-2007 Expert Peer Review Panel, AHRQ University of Alberta Evidence-Based Practice Centers Evidence Report on the Effectiveness of Meditation in Adults for Health-Related Outcomes
2008 Scientific Review Committee, Co-Chair, Second International Conference on Tai Chi for Health, The University of New South Wales, Australia
2008 Scientific Review Committee, Abstract Reviewer, North American Research Conference on Complementary and Integrative Medicine, Minneapolis, MN
2009 Academic Steering Committee, Member, International Taijiquan Conference, Vanderbilt University, Nashville, TN

Professional Societies:

1990-1993	Pi Tau Sigma Mechanical Engineering Honor Society, MIT Chapter Secretary
1993-1996	Asian-Pacific American Medical Student Association, Member
1997-	American Medical Association, Member
1997-	American College of Physicians, Member
1997-2002	Massachusetts Medical Society, Member
2000-	Society of General Internal Medicine (SGIM), Member
2002-	American Academy of Medical Acupuncture, Candidate
2003-	Heart Failure Society of America, Member
2005-	American Heart Association, Member

Grant Review Activities:

2008	Ad Hoc Reviewer NIH, NCCAM, Career Development Awards

Editorial Activities:

Ad Hoc Reviewer

2002-	Am J Public Health, Med Care, Diab Care, J Gen Int Med, Am J Med , Comp Ther in Med, eCAM, Int J Clin Pract, Resp Care, J Card Failure, Circulation

Other Editorial Roles

2002-	Editorial Consultant for ACP-ASIM Physicians' Information and Education Resource (PIER) Online Education Modules
2003-	Editorial Board Member, eCAM Evidence-based Complementary and Alternative Medicine Journal
2006	Editorial Consultant, NIH NCCAM Patient Information Fact Sheet on Tai Chi
2008	Editorial Consultant, NIH NCCAM Patient Information Fact Sheet on CAM and Diabetes

Honors and Prizes:

1991	Letter of Commendation in Chemistry, Massachusetts Institute of Technology
1990-1993	Sigma Kappa Scholarship Award, Theta Lambda Chapter
1990-1993	Pi Tau Sigma Mechanical Engineering Honors
1995-1996	Academic Honors in Microbiology, Immunology, Neurology and Hematology/Oncology, University of Maryland School of Medicine
1997	Dean's Award for Outstanding Service, University of Maryland School of Medicine
2000-2003	NIH T-32 Research Training Program Award in Complementary Medicine
2002	International Scientific Conference on Complementary, Alternative, and Integrative Medicine, Best Oral Presentation in Health Services Research
2003	Jay N. Cohn New Investigator Award, Heart Failure Society of America
2005-2010	NIH K-23 Mentored Patient-Oriented Research Career Development Award, Mind-Body Exercise in Cardiac Disease

Report of Funded and Unfunded Projects

Funding Information:

Past

2000-2004 NIH, National Center for Complementary and Alternative Medicine (NCCAM)
T32 Training Grant, Institutional National Research Service Award

2004-2005 NIH, National Institutes of Aging, Older Americans Independence Center Grant
Tai Chi for Cardiovascular Disease in the Elderly Role: PI

2004-2008 NIH, NCCAM, 1R01AT002454-01 Role: Co-I and HMS Site PI
Tai Chi Mind-Body Movement Therapy for Patients with Chronic Heart Failure

2005-2010 NIH, NCCAM, 1K23 AT002624-01 Role: PI
Mind-Body Exercise in the Management of Cardiovascular Disease

Current

2007-2009 NIH, NCCAM, 1R21AT3725-01A1 Role: Co-I and HMS Site PI
Tai Chi for Obese Patients with Cardiovascular Risk Factors: A Randomized Controlled Pilot Trial

2010-2011 NIH, NCCAM, R43 AT006088 - 01 Role: Co-I
User-Friendly System Dynamics Analysis Tools for Translational Mind-Body Research

2010-2014 NIH/NIA, R37 AG025037-03 Role: Co-I
Nonlinear Dynamics of Frailty in Aging

2010-2015 NIH, NCCAM, R01 AT005436-01A1 Role: PI
Clinical and Autonomic Effects of Mind-Body Exercise in COPD

2010-2013 NIH, NCCAM, R21 AT005501-01A1 Role: Co-I
Tai Chi, Physiologic Complexity, and Healthy Aging

Current Unfunded Projects:

Exercise physiology of tai chi exercise in patients with CHF	PI
Development of a comprehensive tai chi research database	Co-PI
Development of quality and reporting standards for tai chi trials	Co-I
Mindfulness-based stress reduction for mild cognitive impairment	Co-I

Report of Local Teaching and Training

Teaching of Students in Courses:

Local Contributions

2000-2001	HMS Preventive Medicine and Nutrition Section Leader/Tutor 10 medical students 2 hr sessions per week for 12 weeks
2002-2003	HMS Complementary and Alternative Medicine Lecturer 8 medical students 3 hr sessions daily for 3 weeks
2005-2006	HMS Mind-Body Medicine Course Lecturer 20 medical students One hour lecture

Formal Teaching of Residents, Clinical Fellows and Research Fellows:

1998	Evidence-Based Medicine: Feverfew for Migraine Headaches Boston University Medical Resident Teaching Conference Lecturer 25 medical residents/faculty One hour lecture
2000	Overview of Complementary/Alternative Medicine Beth Israel Deaconess Medical Center Nutrition Symposium Lecturer 50 dieticians Two hour lecture
2001	Overview of Complementary/Alternative Medicine Boston University Medical Resident Teaching Conference Lecturer 30 medical residents and faculty One hour lecture
2008	Research in Tai Chi Exercise for Health Beth Israel Deaconess Medical Center Attending Rounds 10 medical residents/students One hour lecture

Clinical Supervisory and Training Responsibilities:

2006-	Precepting medical residents in ambulatory clinic

Healthcare Associates, Beth Israel Deaconess Medical Center
One session per week

Other Research Supervisory and Training Responsibilities:

2006- Junior Faculty Mentor to Complementary and Integrative Medicine Research Fellows
Harvard Medical School Osher Research Center
250 hours per year

2007- Faculty advisor to undergraduate, graduate, postgraduate research interns
Harvard Medical School Osher Research Center
200 hours per year

Local Invited Presentations:

2000 East Meets West: Overview of Traditional Chinese Medicine
Boston VA Medical Center
Medical Grand Rounds

2001 Herbal Remedies for CHF
Integrative Medicine Seminar
Marino Center for Progressive Health

2001 Chelation Therapy for Cardiovascular Disease: Does it work?
Integrative Medicine Seminar
Marino Center for Progressive Health

2002 An Evidence-Based Look at the Health Effects of Coffee
Integrative Medicine Seminar
Marino Center for Progressive Health

2002 Oscillococcinum for Flu
Integrative Medicine Seminar
Marino Center for Progressive Health

2002 Spirituality and Prayer in Medicine
Integrative Medicine Seminar
Marino Center for Progressive Health

2002 Herbs and Supplements for Glycemic Control in Diabetes
Integrative Medicine Seminar
Marino Center for Progressive Health

2003 Mind-Body Therapies in the Management of Cardiac Disease
Faculty Seminar Series
Harvard Medical School Osher Research Center

2005 Tai Chi Mind-Body Exercise for Heart Failure
Cardiology Seminar Series
Massachusetts General Hospital, Division of Cardiovascular Medicine

2006 The Mind-Heart Connection
Department of Social Work Complementary Medicine Series
Beth Israel Deaconess Medical Center

2007 The Evidence for Health Benefits of Tai Chi Exercise
Faculty Seminar Series
Division for General Medicine and Primary Care
Beth Israel Deaconess Medical Center

2008 Mind-Body Exercise for Patients with Heart Failure
Department of Medicine Clinical Conference
Massachusetts General Hospital- Revere Health Center

2009 Tai Chi Exercise for COPD: Results of a Pilot Study
Harvard Medical School Asian Medicine Seminar Series
Osher Research Center

2010 Mind-Body Therapies and Mental Health
Massachusetts General Hospital
Traditional Chinese Medicine Forum

Report of Regional, National, and International Invited Teaching and Presentations

Regional/National

2001 Workshop Leader
Harvard Medical School, Boston, MA
State of the Science in Complementary and Alternative Medicine

2001 Lecturer
International Scientific Conference on Complementary, Integrative Medicine
San Francisco, CA
Acupuncture vs Conventional Medicine Visit Duration

2001 Lecturer
International Scientific Conference on Complementary, Integrative Medicine
San Francisco, CA
Chiropractic vs Conventional Medicine Visit Duration

2002 Lecturer
International Scientific Conference on Complementary, Integrative Medicine, Boston, MA
CAM Use Among Patients with Diabetes

2003 Conference Workshop Leader
Harvard Medical School State of the Science in Complementary and Alternative Medicine, Boston, MA
Cases in Complementary Medicine

2003 Lecturer
Heart Failure Society of America, Las Vegas, NV
Benefit of Tai Chi as an Adjunct to Standard Care for Patients with Chronic Heart Failure

2004 Workshop Leader
Society of General Internal Medicine Annual Meeting, Chicago, IL
Common Herbs and Supplements Every Internist Should Know

2005 Invited Panel Speaker
Acupuncture and Oriental Medical Society of Massachusetts, Brookline, MA
Current Research in Asian Medicine

2005 Lecturer
Medical Grand Rounds, Exeter Hospital, Exeter NH
The Evidence Base for Tai Chi Mind-Body Exercise for Medical Conditions

2006 Lecturer
24th Annual ATOC Taijiquan Summer Seminar Series, Winchester, VA
State of the Science in Taiji Research

2008 Lecturer
Harvard Medical School Mind-Body Medicine Conference, Boston, MA
Exploring Mechanisms of Mind-Body Exercise in Chronic Heart Failure

2008 Lecturer
Cardiology Symposium- New England, Newton, MA
Stress Management, Mind-Body Medicine, and Cardiovascular Health

2008 Invited Speaker
ATOC Taijiquan Conference, Winchester, VA
Taiji Research and Cardiovascular Health

2008 Invited Panel Member
National Institutes of Health NCCAM Workshop, Bethesda, MD
Meditation for Health Purposes- Articulating Future Goals and Directions for Research

2009 Invited Presenter/Speaker
National Institutes of Health NCCAM 10th Anniversary Celebration, Distinguished Stephen Strauss Seminar Series, Bethesda, MD
Clinical Studies of Tai Chi Exercise in Patients with Cardiopulmonary Disease

2009 Featured Speaker

Harvard Medical School Continuing Medical Education Course
Heart Disease in Women- 2009 Update, Boston, MA
Incorporating Mind-Body Therapies into Your Practice

2009 Invited Speaker
Massachusetts Institute of Technology
Traditional Medicine Society Seminar, Cambridge, MA
The State of the Science of Mind-Body Medicine

2010 Invited Speaker
University of Massachusetts Medical School
Integrative Medicine Symposium
Tai Chi and Cardiovascular Health

International

2006 Workshop Leader
North American Research Conference on Complementary and Integrative Therapies, Edmonton, AB, Canada
Traditional Tai Chi and Qigong in Healing: Mind-Body Research and Application

2006 Lecturer
North American Research Conference on Complementary and Integrative Therapies, Edmonton, AB, Canada
Use of Mind-Body Therapies in Patients with Cardiovascular Disease

2006 Lecturer
North American Research Conference on Complementary and Integrative Therapies, Edmonton, AB, Canada
Systematic Review of Tai Chi and Cardiovascular Physiology

2010 Keynote Speaker
International Conference on Tai Chi for Health, Orlando, FL
State of the Science: Tai Chi/Qigong and Cardiovascular Health

2009 Symposium Leader
North America Research Conference on Complementary and Integrative Medicine, Minneapolis, MN
Systematic Reviews and Meta-Analysis in CAM

2009 Symposium Leader
North America Research Conference on Complementary and Integrative Medicine, Minneapolis, MN
State of the Science in Tai Chi Research

2009 Invited Speaker
International Taijiquan Symposium, Nashville, TN
State of the Science of Tai Chi and Cardiovascular Health

2009 Distinguished Panel Member

International Taijiquan Symposium, Nashville, TN
The Future of Taijiquan Research

Report of Clinical Activities and Innovations

Current Licensure and Certification:

1999- Medical License, Commonwealth of Massachusetts
2001- Diplomate, American Board of Internal Medicine
2002- Medical Acupuncture, Board Eligible, American Board of Medical Acupuncture

Practice Activities:

Outpatient primary care medicine practice and co-management precepting of general internal medicine residents in Healthcare Associates at Beth Israel Deaconess Medical Center (teaching hospital of Harvard Medical School). Areas of clinical interest include integrative therapies and preventive cardiac care (including stress-reduction, exercise, and nutrition counseling).
One session per week of outpatient clinical care as a co-management preceptor of 4-6 residents. One session per week of outpatient primary care. Complexity of cases varies from simple single issue visits to management of multiple, complicated, chronic medical conditions. Some patients specifically seek expertise and knowledge regarding complementary treatment options.

Report of Education of Patients and Service to the Community

Activities:

2006 Distinguished Speaker
The Center for Information and Study on Clinical Research Participation
Annual Clinical Research Education and Awareness Symposium, Boston, MA
Mind-Body Therapies for Cardiovascular Disease and Heart Failure

2008 Speaker
Brigham and Women's Hospital Living with Heart Failure Symposium, Waltham, MA
Complementary and Alternative Medicine and Heart Failure

2009 Speaker
Sister-to-Sister, New England Symposium, Boston, MA
Stress Management and Cardiovascular Women's Health

Report of Scholarship

Publications:

Peer-Reviewed Publications

Research Investigations

1. Mahaffey CL, Bayleran JK, **Yeh GY**, Lee TC, Page DC, Simpson EM. Intron/exon structure confirms that mouse Zfy1 and Zfy2 are members of the ZFY gene family. Genomics 1997;41:123-7.

2. **Yeh GY**, Eisenberg DM, Davis RB, Phillips RS. Complementary and alternative medicine use among patients with diabetes mellitus: results of a national survey. Am J Pub Health 2002;92:1648-1652.

3. **Yeh GY**, Eisenberg DM, Davis RB, Cherkin DC, Phillips RS. Time spent with acupuncturists and chiropractors: visit time as a framework for reimbursement. Altern Ther Health Med 2003;9:88-94.

4. **Yeh GY**, Wood MJ, Lorell BH, Stevenson LW, Goldberger AL, Wayne PM, Eisenberg DM, Davis RB, Phillip RS. Effect of Tai Chi mind-body movement therapy on functional status and exercise capacity in patients with chronic heart failure: a randomized controlled trial. Am J Med 2004;117:541-8.

5. **Yeh GY**, Davis RB, Phillips RS. Use of complementary therapies in patients with cardiovascular disease. Am J Cardiology 2006;98:673-80.

6. **Yeh GY**, Mietus JE, Peng CK, Phillips RS, Davis RB, Goldberger AL, Thomas RS. Enhancement of sleep stability with tai chi exercise in patients with chronic heart failure: preliminary findings using an ECG-based spectrogram method. Sleep Medicine 2008; 9:527-36.

7. **Yeh GY**, Ryan MA, Phillips RS, Audette JP. Medical doctor training in and practice of acupuncture: results of a survey. J Clin Eval Pract 2008;14: 439-45.

8. Wellenius GA, **Yeh GY**, Coull BA, Suh HH, Phillips RS, Mittleman MA. Effects of ambient air pollution on functional status in patients with chronic congestive heart failure: a repeated-measures study. Environ Health 2007;6:26.

9. **Yeh GY,** Wayne PM, Phillips RS. Tai chi exercise in patients with chronic heart failure. Tai Chi Chuan: State of the Art in International Research. Med Sport Sci. 2008; 52:195-208.

10. Birdee G, **Yeh GY**, Wayne PM, Phillips RS. Tai chi and qigong for health: patterns of use in the U.S. J Alt Comp Med 2009; 15(9): 969-973.

11. Wayne PM, Buring JE, Davis RB, Connors EM, Bonato P, Patritti B, Mary Fischer M, **Yeh GY**, Cohen CJ, Carroll D, Kiel DP. Tai chi for osteopenic women: design and rationale of a pragmatic randomized controlled trial. BMC Musculoskeletal Disorders 2010; 11:40.

12. **Yeh GY**, Roberts DH, Wayne PM, Davis RB, Quilty MT, Phillips RS. Tai chi exercise for patients with chronic obstructive pulmonary disease: a pilot study. Resp Care. 2010; 55:1475-82.

13. Wayne PM, Buring JE, Davis RB, Connors EM, Bonato P, Patritti B, Fischer M, **Yeh GY**,

Cohen CJ, Carroll D, Kiel DP. Tai Chi for osteopenic women: design and rationale of a pragmatic randomized controlled trial. BMC Musculoskelet Disord. 2010;11:40.

14. Nerurkar A**, Yeh, GY,** Davis RB, Birdee GS, Phillips RS. When conventional providers recommend unconventional medicine: results of a national study. Arch Int Med. 2011; In Press.

Other Peer-Reviewed Publications

15. **Yeh GY**, Eisenberg DM, Kaptchuk TJ, Phillips RS. Systematic review of herb and dietary supplements for glycemic control in diabetes. Diabetes Care 2003;26:1277-1294.

16. Buettner C, **Yeh GY**, Phillips RS, Mittelman MA, Kaptchuk TJ. Systematic review of the effects of Ginseng on cardiovascular risk factors. Ann Pharmacother 2006;40:83- 95.

17. **Yeh GY**, Wang CC, Wayne PM, Phillips RS. Tai chi mind-body exercise and hypertension: a systematic review. Prev Cardiology 2008; 11:82-89.

18. **Yeh GY**, Wang CC, PM Wayne, Phillips RS. Tai chi exercise for patients with cardiovascular conditions and risk factors: a systematic review. J Cardiopulm Rehab Prev 2009;29(3):152-60.

19. Birdee GS, **Yeh GY**, Wayne PM, Davis RB, Gardiner P. Clinical application of yoga for the pediatric population: a systematic review. Acad Pediatr 2009;9(4):212-220.

20. Birdee GS, Rothman R, **Yeh GY**. Complementary and alternative medicine therapies for diabetes: a clinical review. Diabetes Care 2010; in Press.

<u>Non-Peer Reviewed Scientific or Medical Publications</u>

Reviews, Chapters, Monographs and Editorials

21. **Yeh GY**. Clinical consultation: should you recommend Tai Chi for your patients with COPD? J Resp Dis 2005;26:405. [Literature Review of Tai Chi for Chronic Pulmonary Disease]

22. **Yeh GY**. The Cochrane column. Critique of a Cochrane Review of Tai Chi for Rheumatoid Arthritis. Explore 2008; 4: 275-277.

23. **Yeh GY,** Kaptchuk TJ, Shmerling RH. Prescribing tai chi for fibromyalgia- are we there yet? N Engl J Med 2010; 363: 783-784.

Books/Textbooks for the medical community

24. Sierpina V, Garcia K, **Yeh GY**. Tai Chi and Qigong for cardiovascular disease. In: Vogel and Krucoff, editors. Integrative cardiology. New York: McGraw-Hill; 2007. p. 231-256.

Professional Educational Materials or Reports:

1. **Yeh, GY**. Use of herbal supplements in a 34 year old woman with diabetes and hepatitis. Harvard Medical School Continuing Medical Education Course Syllabus. 2001 State of the Science of Complementary and Alternative Medicine.

2. **Yeh, GY**. Finding reliable print and internet resources on complementary and alternative medicine, Workshop Syllabus, 2004 Society of General Internal Medicine.

Clinical Guidelines and Reports:

1. American College of Physicians, PIER Physicians' Information and Education Resource, Evidence-Based Guidelines of Clinical Care, Mind-Body Medicine Module http://pier.acponline.org

Thesis:

1. **Yeh, GY**. Characterization of the Zinc-Finger genes (ZFX & ZFY) on the human sex chromosomes. Massachusetts Institute of Technology; May 1993.

Abstracts, Poster Presentation and Exhibits Presented at Professional Meetings:

1. **Yeh GY**, Wang CC, Phillips RS, Wayne PM. Tai chi mind-body exercise and cardiovascular physiology. Altern Ther Health Med 2006.

2. **Yeh, GY**, Roberts DH, Wayne PM, Goldberger AL, Phillip RS. Tai Chi Exercise for Patients with Chronic Obstructive Pulmonary Disease. North American Research Conference for Complementary and Integrative Medicine, May 2009, Minneapolis, MN.

3. **Yeh, GY**, Forman DE, Wood MJ, Wayne PM, Quilty MT, Goldberger AL, Phillips RS. Tai Chi Exercise vs. Low-Impact Aerobics for Patients with Diastolic Heart Failure. North American Research Conference for Complementary and Integrative Medicine, May 2009, Minneapolis, MN.

4. **Yeh GY**, McCarthy EP, Wayne PM, Stevenson LW, Wood MJ, Forman DE, Davis RB, Phillips RS. Tai Chi Exercise Improves Quality of Life in Patients with Chronic Stable Heart Failure in a Randomized Controlled Trial. Heart Failure Society of America, September 2010, San Diego, CA

5. **Yeh GY**, McCarthy EP, Wayne PM, Stevenson LW, Wood MJ, Forman DE, Davis RB, Phillips RS. Selective Improvement of Quality of Life and Perceived Exercise Capacity After Tai Chi Training: A Randomized Controlled Trial in Chronic Stable Heart Failure. America Heart Association, October 2010, Chicago, IL.

Narrative Report

My major research activities involve the investigation of efficacy and mechanisms of mind-body exercise for chronic disease, with a particular interest in cardiopulmonary conditions. Chronic

cardiovascular and pulmonary diseases affect a staggering percentage of the general population, and are responsible for large economic costs to our health care system. Inherent in mind-body exercises, such as tai chi, are multiple components (eg. physical activity, core strengthening, relaxation, stress management, cardiovascular endurance training and breathing techniques) that may be beneficial for these patient populations. Recent preliminary work has provided some evidence for these effects.

I have recently completed my NIH K-23 career development award. This award focused on developing and implementing two related projects: 1) The first assessed current trends in complementary therapy use in patients with cardiovascular disease. Utilizing the National Health Interview Survey, a large, national database, this project focused on prevalence and perceived benefits of mind-body therapies, including tai chi, qigong, and yoga. 2) The second and main project was a randomized controlled trial of a tai chi/qigong intervention vs. conventional low-impact aerobics for older patients with diastolic heart failure. Although designed as a pilot feasibility study, the trial allowed exploration of several clinical factors and outcomes including: exercise tolerance, physiological markers of neurohormonal status, autonomic tone, quality of life, mood, self-efficacy, beliefs/expectations, and cost. Additionally, within the context of this clinical trial, we examined the exercise physiology of tai chi in comparison with conventional aerobic exercise through measurement of real-time cardiovascular parameters and gas exchange during exercise (eg. exercise intensity, heart rate, oxygen consumption, and ventilatory efficiency).

In addition to the research funded through my K-23 award, I have been involved in several other mind-body and tai-chi related projects, including a larger clinical trial of tai chi in patients with systolic heart failure, and several pilot studies of tai chi, including one for obese patients with cardiovascular risk factors and another for Asian American patients with depression. Other projects are investigating components of mind-body therapies such as slow meditative breathing in yoga practitioner and in patients with hypertension and obesity. Several recent grant submissions and/or awards include a R01 examining clinical and autonomic effects of mind-body exercise in chronic obstructive pulmonary disease (PI), another R01 examining tai chi as an exercise maintenance strategy in COPD after pulmonary rehabilitation (PI), a R21 examining multi-component mind-body therapy in the context of physiologic complexity and healthy aging (Co-I), and a program grant including two R01-scale projects examining translational biomarkers in the study of acupuncture, tai chi, and chronic low back pain (Co-I).

My most recent clinical work is based at Beth Israel Deaconess Medical Center Healthcare Associates as a primary care physician and resident preceptor in General Medicine. Prior to that, I worked at the Marino Center for Progressive Health in Cambridge, Massachusetts, a large integrative health clinic with both conventional and complementary providers, and was involved in the development of the tai chi clinical program at the Osher Clinical Center for Complementary and Integrative Medical Therapies.

Teaching contributions include lecturing in Harvard Medical School courses, serving as junior faculty advisor to research fellows, graduate and medical students, and invited speaking engagements to healthcare professionals, alternative practitioners, and lay individuals about integrative medicine, mind-body therapies, tai chi and its related research.