



The Role of Integrative Oncology for Patients with Cancer

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City of Hope

Disclosures

- I do not have any relevant financial relationships.

This presentation and/or comments will provide a balanced, non-promotional, and evidence-based approach to all diagnostic, therapeutic and/or research related content.

Cultural Linguistic Competency (CLC) & Implicit Bias (IB)

STATE LAW:

The California legislature has passed Assembly Bill (AB) 1195, which states that as of July 1, 2006, all Category 1 CME activities that relate to patient care must include a cultural diversity/linguistics component. It has also passed AB 241, which states that as of January 1, 2022, all continuing education courses for a physician and surgeon **must** contain curriculum that includes specified instruction in the understanding of implicit bias in medical treatment.

The cultural and linguistic competency (CLC) and implicit bias (IB) definitions reiterate how patients' diverse backgrounds may impact their access to care.

EXEMPTION:

Business and Professions Code 2190.1 exempts activities which are dedicated solely to research or other issues that do not contain a direct patient care component.

The following CLC & IB components will be addressed in this presentation:

- The cultural diversity of traditional medical systems that patients may want to incorporate into their cancer treatments.
- The barriers to accessing integrative services as part of cancer care.

Outline

- Background on Integrative, Complementary, Alternative Medicine (ICAM)
- Evidence-Based Integrative Oncology
- Integrative Oncology at City of Hope

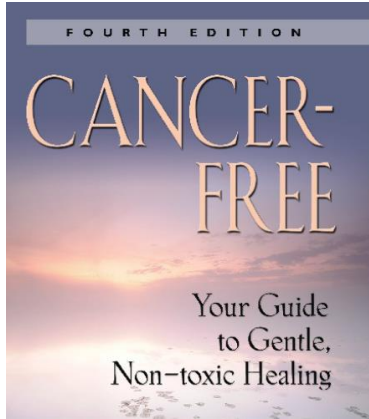
Case 1...

- 58 y/o woman with metastatic colorectal cancer started on FOLFIRI + bevacizumab
- Her main concerns are about sleep and fatigue
- “By the way, I’m taking some herbs and supplements...”





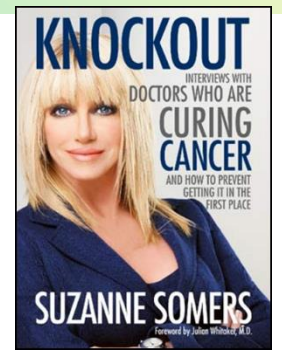
THE CURE FOR ALL



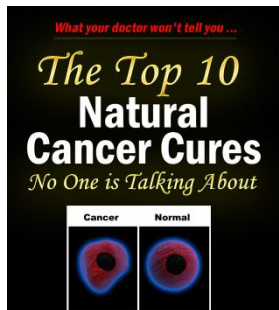
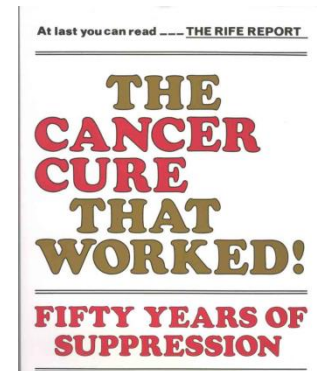
This revolution
targets cancer
destroying r



Frank started to get a funny feeling
that his doctor was a quack.



YOUR CANCER
RNATIVE NON-
TMENTS THAT
ORK



rground Cures
for Cancer

Integrative, Complementary, Alternative, and Integrative Medicine (ICAM)

- ◆ National Center for Complementary and Integrative Health (NCCIH) 2014 – National Institutes of Health (NIH)
 - ◆ Previously the Office of Alternative Medicine (1991) and the National Center for Complementary and Alternative Medicine (NCCAM) 1998
- ◆ Definition
 - ◆ Healthcare approaches developed outside of mainstream Western or conventional medicine

Categories of ICAM - NCCIH

1. Natural Products

- Dietary supplements, herbal products, shark cartilage

2. Mind-Body Interventions

- Meditation, prayer, mental healing, music therapy

3. Body-Based Methods

- Chiropractic, osteopathic, massage, manipulation

4. Other - Whole Medical Systems, Energy Therapies, and Movement Therapies

- Traditional Chinese medicine and Reiki



ACADEMIC CONSORTIUM
FOR **INTEGRATIVE**
MEDICINE & HEALTH

- The practice of medicine that reaffirms the importance of the relationship between practitioner and patient
- Focuses on the whole person
- Informed by evidence
- Makes use of all appropriate therapeutic approaches, providers, and disciplines to achieve optimal health and healing

The magazine cover features a photograph of a person's back with several acupuncture needles inserted into the skin. The person's head is turned away from the camera, showing the back of their head and shoulders. The background is a soft, out-of-focus light color.

U.S. News & WORLD REPORT
JANUARY 21, 2008

Alternative Medicine Goes Mainstream

Top hospitals are now embracing
such unconventional techniques
as acupuncture, homeopathy,
and energy healing.

Do they really work?
What patients need to know

\$4.99 U.S. / \$5.99 CANADA



www.usnews.com

Integrative Oncology Services at NCI Comprehensive Cancer Centers

Service	2009	2016
Physician IM Consultation	--	60%
Herb/Supplement Consultation	42-44%	89-96%
Meditation	56%	89%
Yoga	56%	87%
Music Therapy	52%	82%
Acupuncture	59%	89%
Massage	54%	84%

CAM Use Among Cancer Patients

Table 1. Proportion of Patients Who Used CAM, Combined CAM With Conventional Therapy, and Discussed CAM With Physician

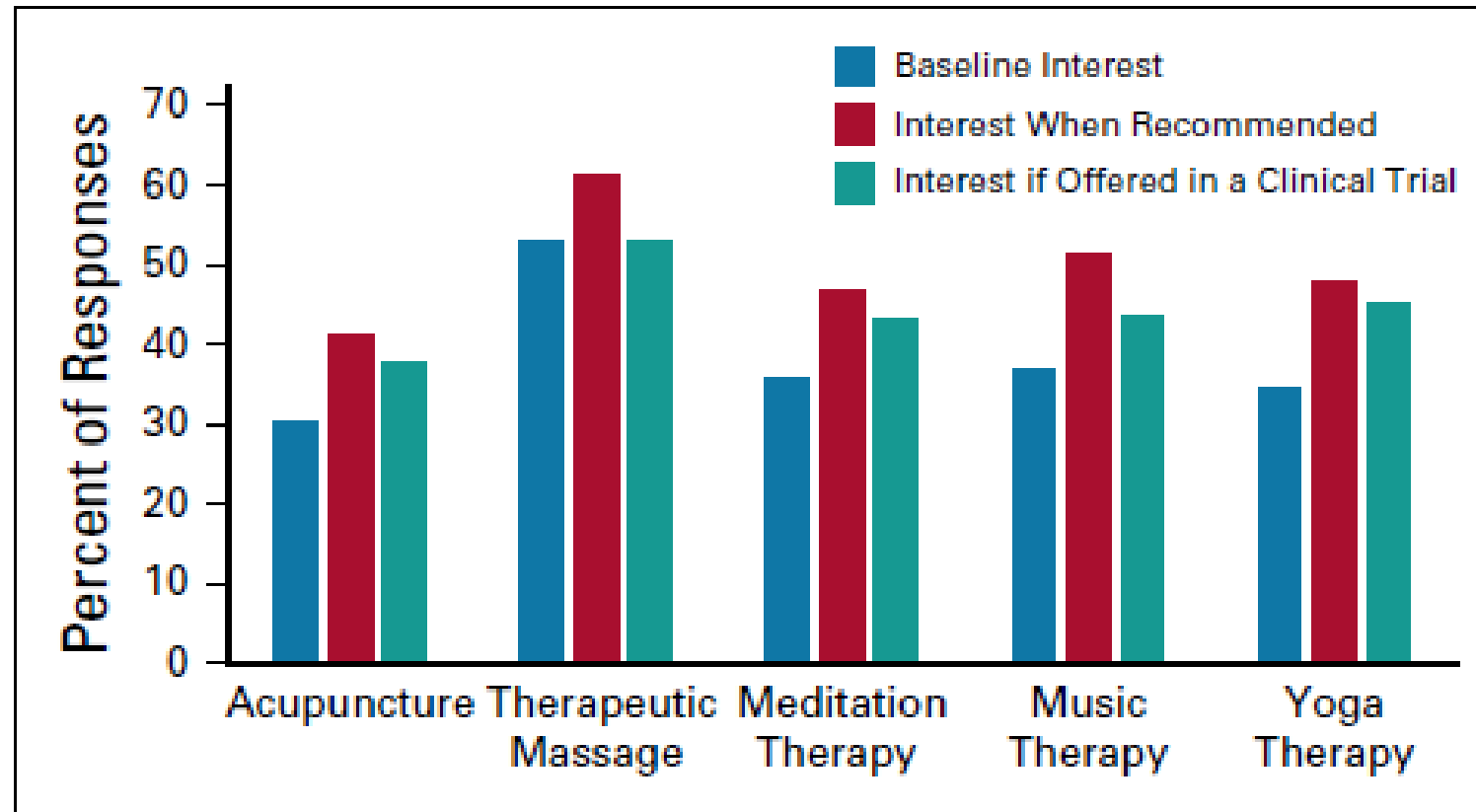
Type of CAM	Heard of CAM (%)	If Heard of CAM, Ever Used (%)	Combined CAM With Conventional Therapy (% of users)	Discussed CAM With Physician (% of users)
CAM overall	99.3	83.3	88.0	61.8
CAM overall excluding spiritual/psychotherapy	95.8	68.7	75.2	60.7
Spiritual practices	95.7	80.5	91.0	36.6
Vitamins/herbs	88.1	62.6	76.6	64.1
Movement/physical therapies	78.4	59.2	66.9	48.4
Psychotherapy	74.0	41.2	58.3	41.1
Mind/body	71.3	48.6	79.5	26.3
Special diet	65.2	32.3	63.2	41.9
Other therapies	64.2	10.5	40.0	15.8

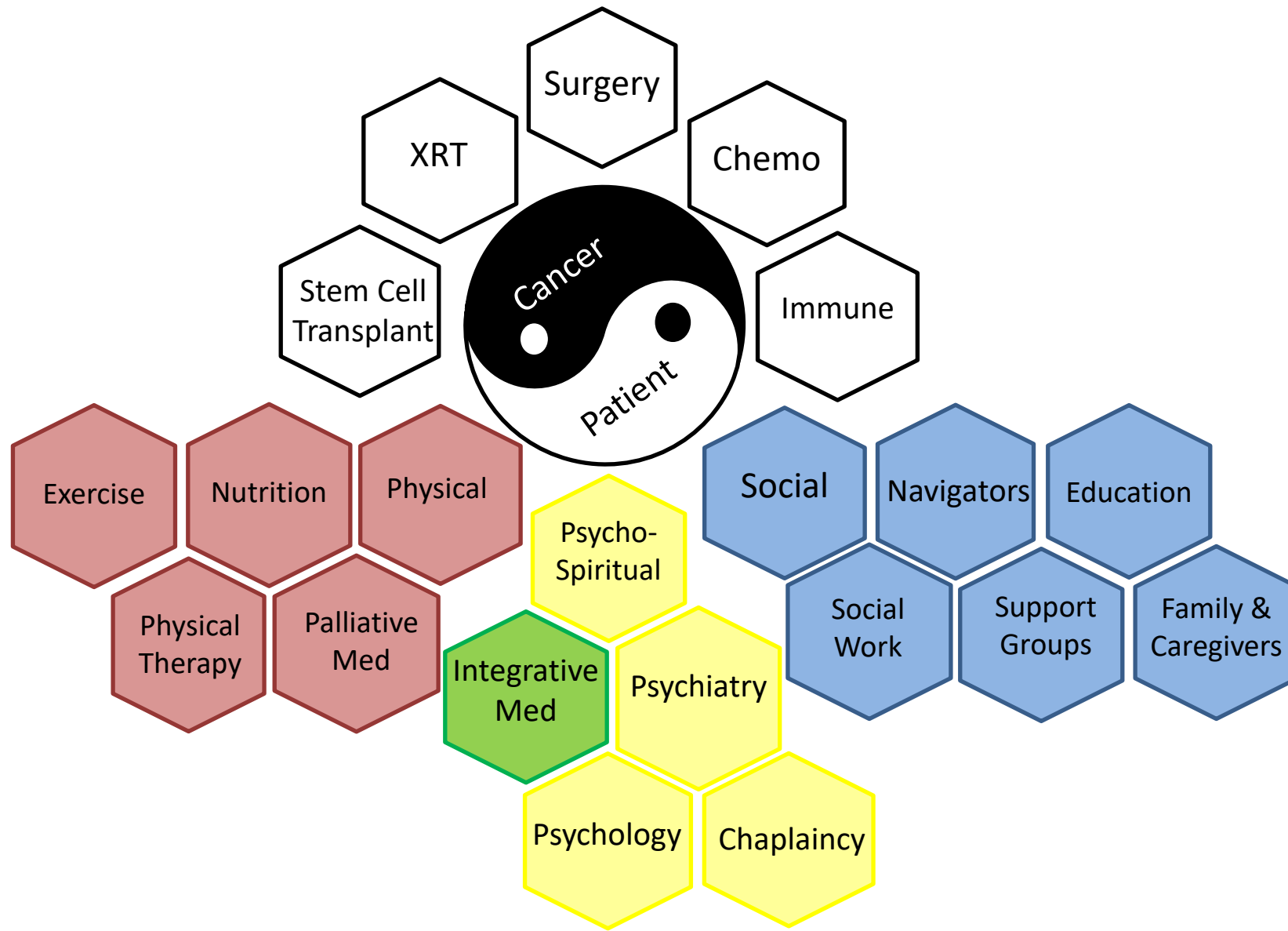
- MD Anderson Cancer Center, 2000
 - ~450 patients

Interest and Willingness to Pay for Integrative Therapies of Patients With Cancer and Caregivers

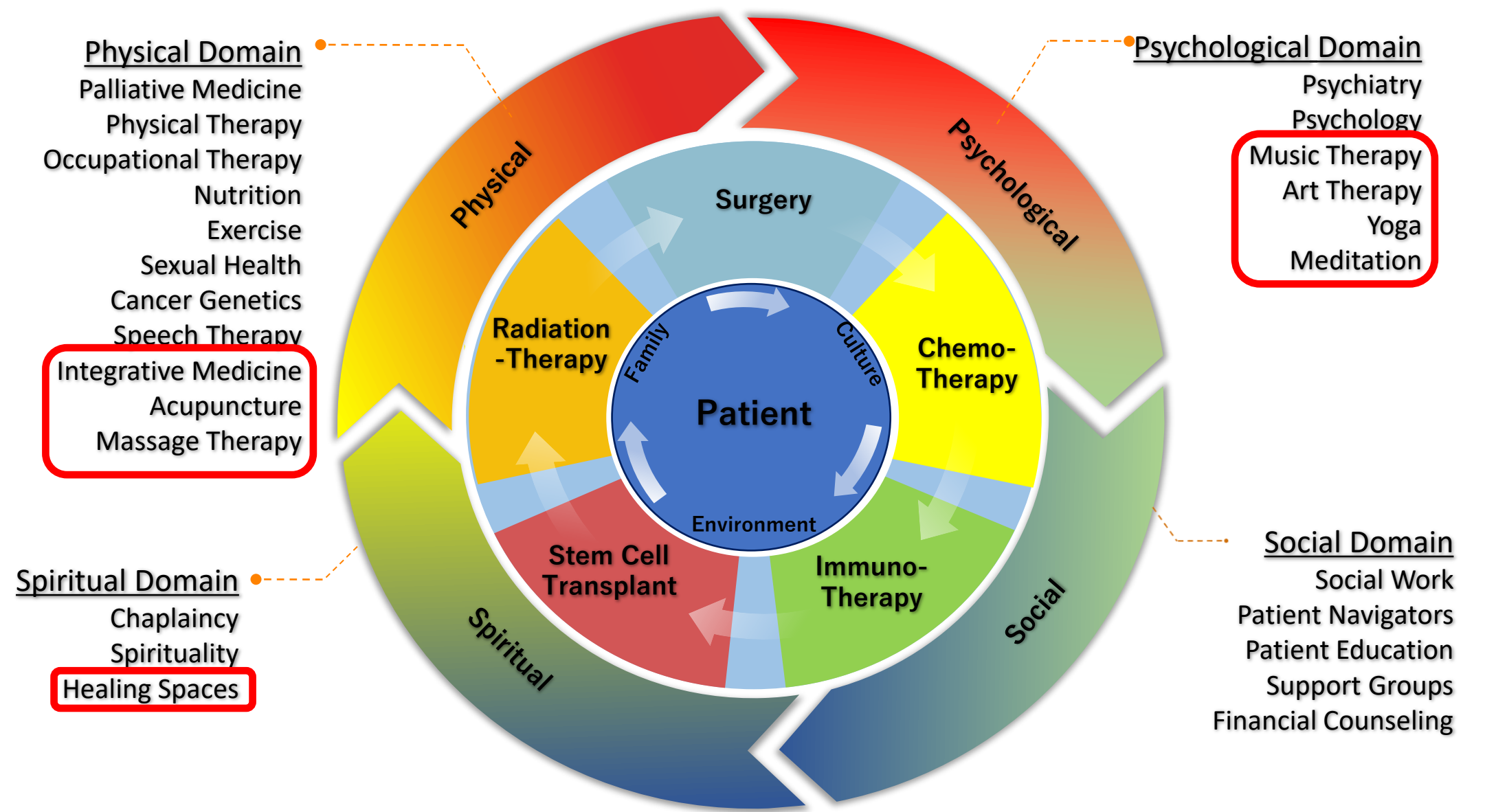
Olivia M. Larbi, BA¹; Cherry Jiang, MD¹; Bethanny McLane, BA²; Gi-Ming Wang, MS¹; Katherine Daunov, MSN²; Sean M. Hobson, BA²; Barbara Daly, PhD¹; Susan R. Mazanec, PhD, RN¹; Denise Feyes, MS³; Samuel Rodgers-Melnick, MT-BC²; Ming Li, PhD¹; Hasina Momotaz, MS¹; and Richard T. Lee, MD^{2,3}

Interest in Integrative Therapies





Supportive & Integrative Oncology Program Clinical Model



Similarities & Differences with Supportive Care

Similarities

- Symptom management and quality of life
- Holistic philosophy

Differences

- Optimizing health and wellbeing
- Lifestyle medicine – nutrition and exercise
- Use of herbs and supplements for symptom management and anticancer effects

Evidence-Based Integrative Oncology

- **Integrative/Holistic Approach => Focus on health and wellness**
 - American Cancer Society guidelines for cancer survivorship
- **Treatment Options => Education & Research**
 - Herbs and supplements
 - Preventing medication interactions
 - Other treatment options: acupuncture, meditation, music therapy, etc.
- **Chronic or refractory symptoms (e.g. pain & stress)**
 - Evidence-based use of acupuncture, massage, meditation, music/art therapy
- **Patients seeking alternative treatments**
 - Educate patients about the risks and benefits
 - Monitor these patients for safety and outcomes

Nutrition & Physical Activity

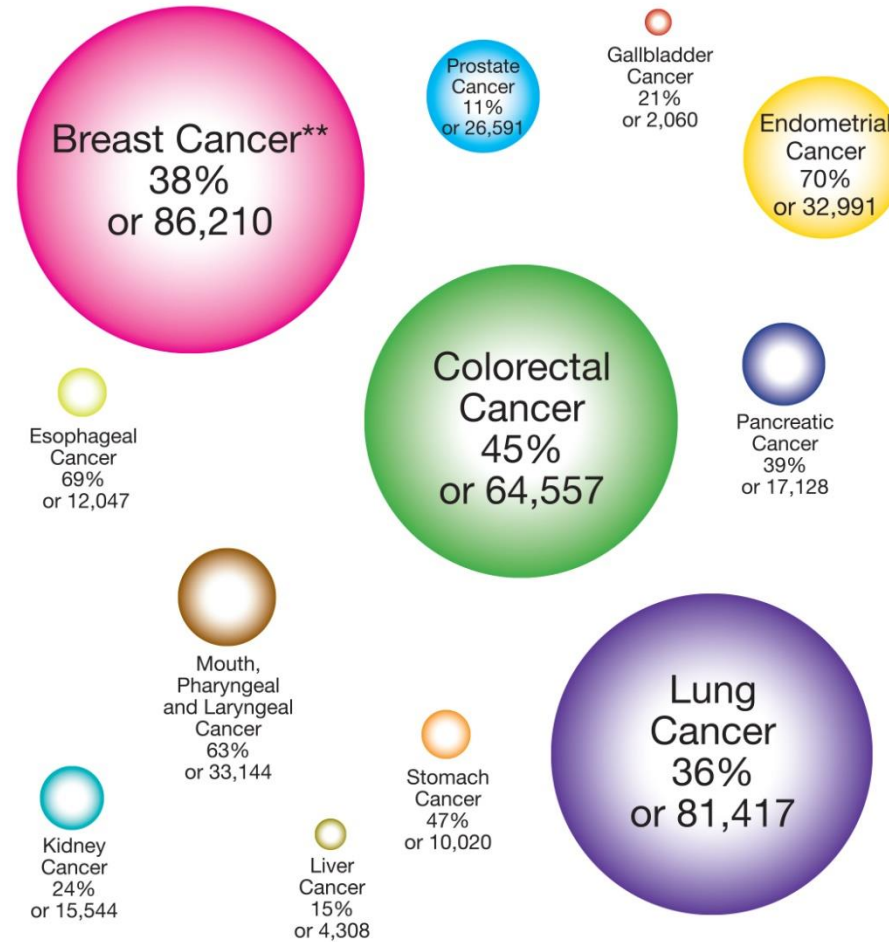


Americans can prevent $\frac{1}{3}$ of the most common cancers*

STAYING LEAN

EATING SMART

MOVING MORE



American Cancer Society nutrition and physical activity guideline for cancer survivors

- Healthy body weight (normal BMI)
- Exercise regularly – 150 minutes/week of moderate intensity or 75 minutes of vigorous activity
- 5 servings of fruits and vegetables per day
- Limit processed meat, red meat, and refined grains
- Limit alcohol

AICR RECOMMENDATIONS FOR CANCER PREVENTION

A Blueprint to Beat Cancer

To prevent cancer, people should aim to follow as many of the **10 Cancer Prevention Recommendations** as possible. However, any change you make that works toward meeting the goals set out in the Recommendations will go some way to reducing your cancer risk.

EAT A DIET RICH IN WHOLE GRAINS, VEGETABLES, FRUITS AND BEANS

Make whole grains, vegetables, fruits and pulses (legumes) such as beans and lentils a major part of your usual daily diet



LIMIT CONSUMPTION OF RED AND PROCESSED MEAT

Eat no more than moderate amounts of red meat, such as beef, pork and lamb. Eat little, if any, processed meat



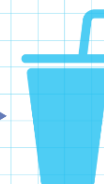
BE PHYSICALLY ACTIVE

Be physically active as part of everyday life – walk more and sit less



LIMIT CONSUMPTION OF SUGAR-SWEETENED DRINKS

Drink mostly water and unsweetened drinks



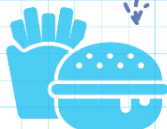
LIMIT ALCOHOL CONSUMPTION

For cancer prevention, it's best not to drink alcohol



LIMIT CONSUMPTION OF “FAST FOODS” AND OTHER PROCESSED FOODS HIGH IN FAT, STARCHES OR SUGARS

Limiting these foods helps control calorie intake and maintain a healthy weight



FOR MOTHERS: BREASTFEED YOUR BABY, IF YOU CAN

Breastfeeding is good for both mother and baby



AFTER A CANCER DIAGNOSIS: FOLLOW OUR RECOMMENDATIONS, IF YOU CAN

Check with your health professional about what is right for you



DO NOT USE SUPPLEMENTS FOR CANCER PREVENTION

Aim to meet nutritional needs through diet alone



American
Institute for
Cancer
Research®
www.aicr.org

Not smoking and avoiding other exposure to tobacco and excess sun are also important in reducing cancer risk.

Following these Recommendations is likely to reduce intakes of salt, saturated and trans fats, which together will help prevent other non-communicable diseases.

Development of Methotrexate

The New England Journal of Medicine

Volume 238

TEMPOR
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SIDN

tients with acute leukemia.² Post-mortem studies of leukemic infiltrates of the bone marrow and viscera in patients treated with folic acid conjugates were regarded by Farber as evidences of an acceleration of the leukemic processes to a degree not encountered in his experience with some 200 post-mortem examinations on children with acute leukemia not so treated. It appeared worth while,

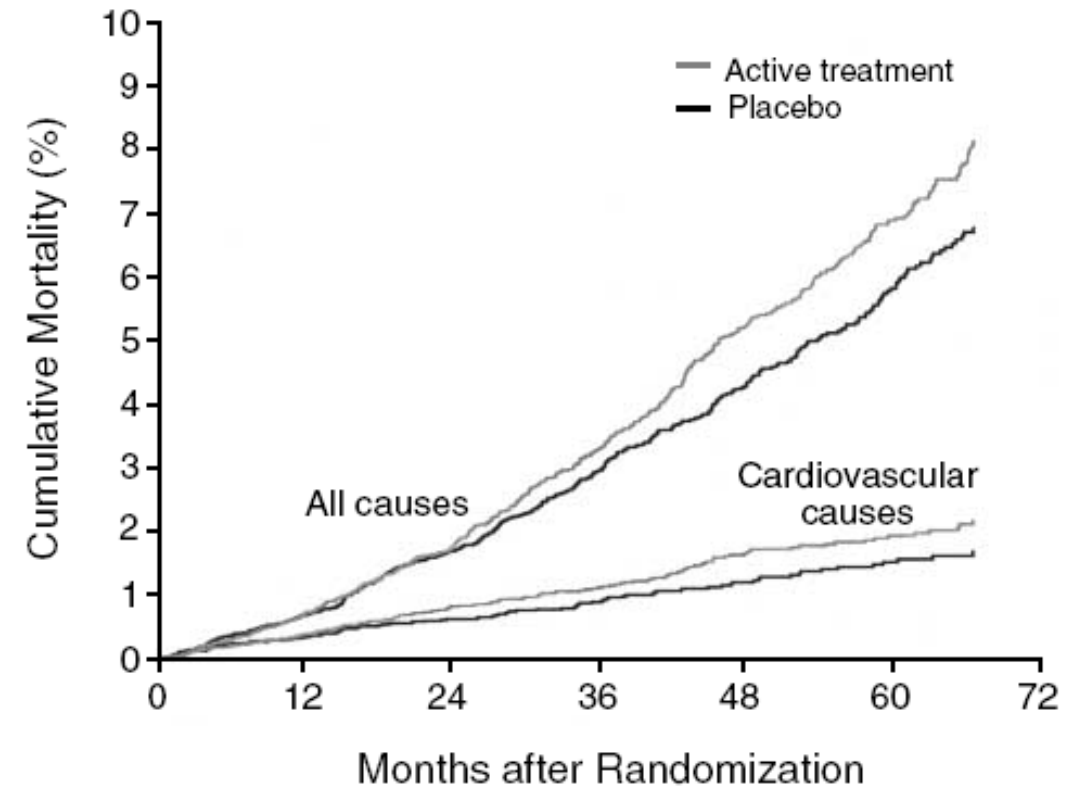
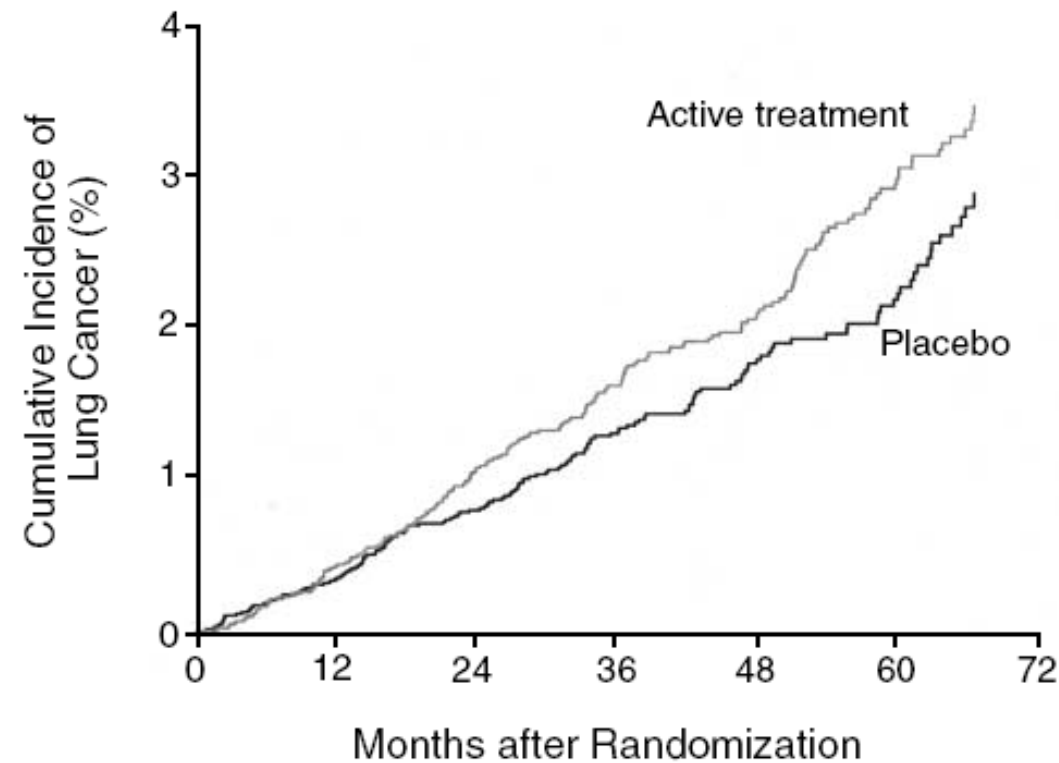
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BOSTON

EFFECTS OF A COMBINATION OF BETA CAROTENE AND VITAMIN A ON LUNG CANCER AND CARDIOVASCULAR DISEASE



Vitamin E and the Risk of Prostate Cancer

The Selenium and Vitamin E Cancer Prevention Trial (SELECT)

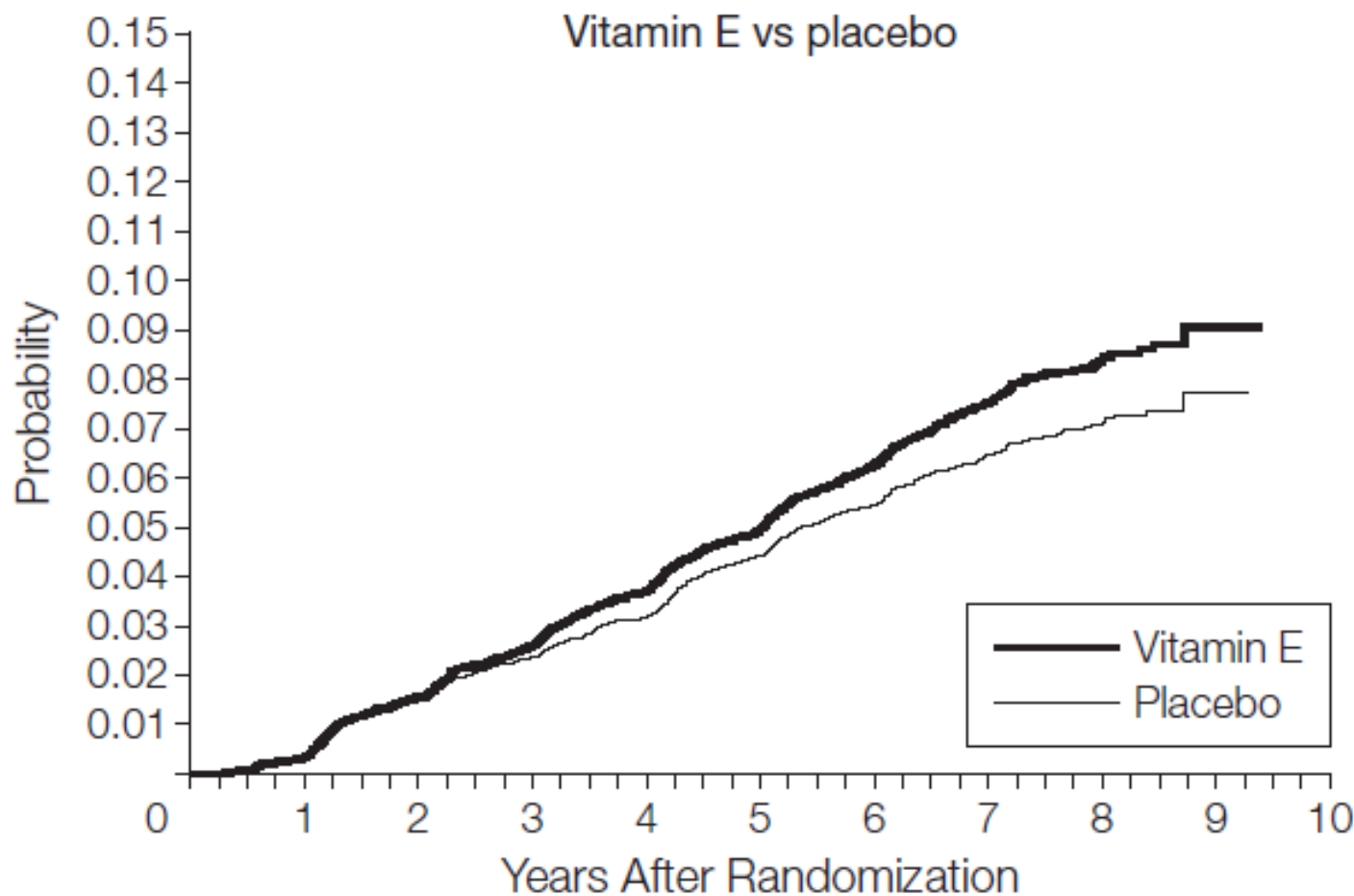


Figure 2. Cumulative Incidence of Prostate Cancer

Documented Risks

Acute Cyanide Toxicity Caused by
Apricot Kernel Ingestion

Essiac[®] and Flor-Essence[®] herbal tonics stimulate the *in vitro* growth of human breast cancer cells

Acquired Long QT Syndrome and Monomorphic Ventricular Tachycardia
After Alternative Treatment With Cesium Chloride for Brain Cancer

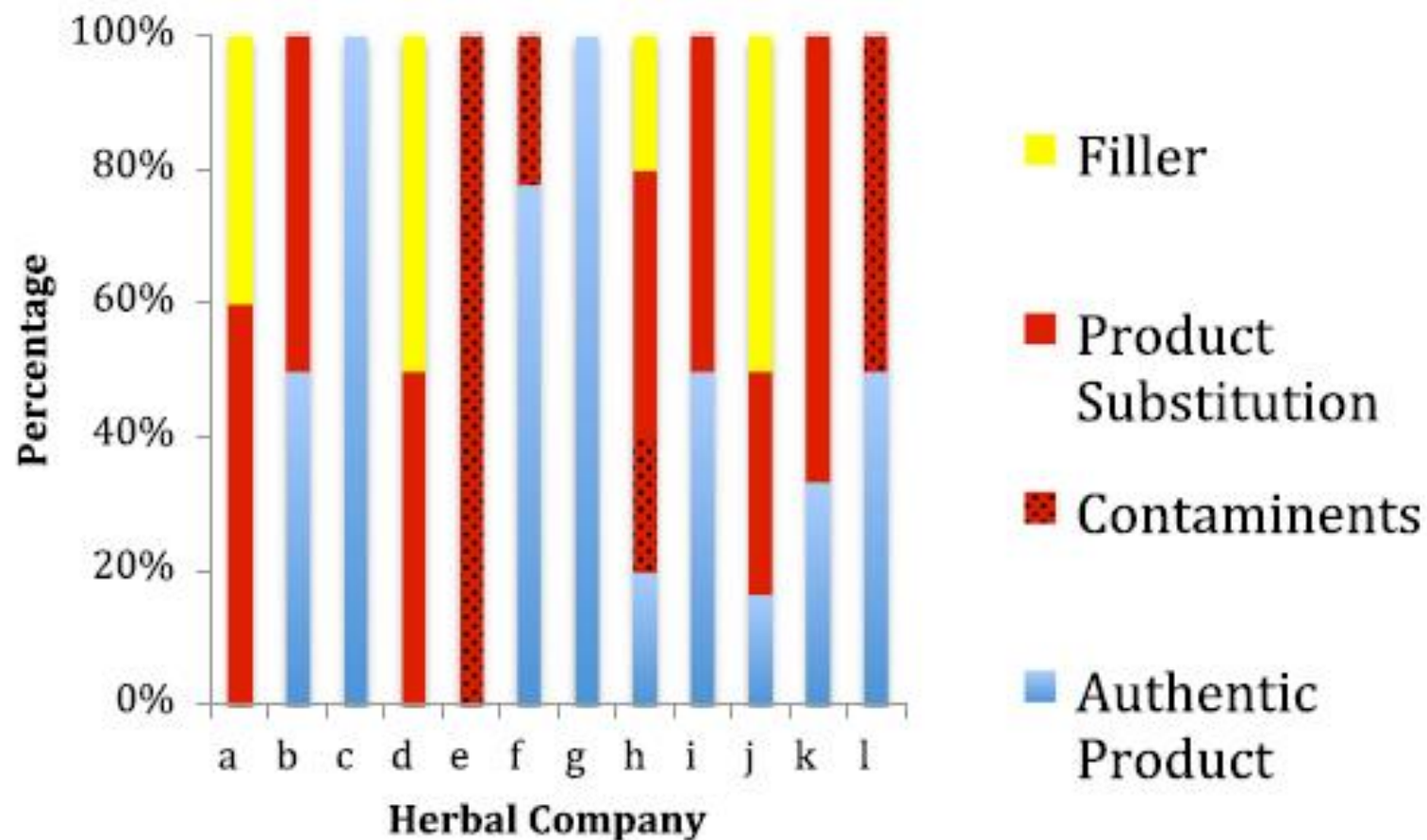
Hepatotoxicity from green tea: a review of the literature
and two unpublished cases

UROTHELIAL CARCINOMA ASSOCIATED WITH THE USE OF A CHINESE HERB
(*ARISTOLOCHIA FANGCHI*)

Ayurvedic herbal medicine and lead poisoning

DNA barcoding detects contamination and substitution in North American herbal products

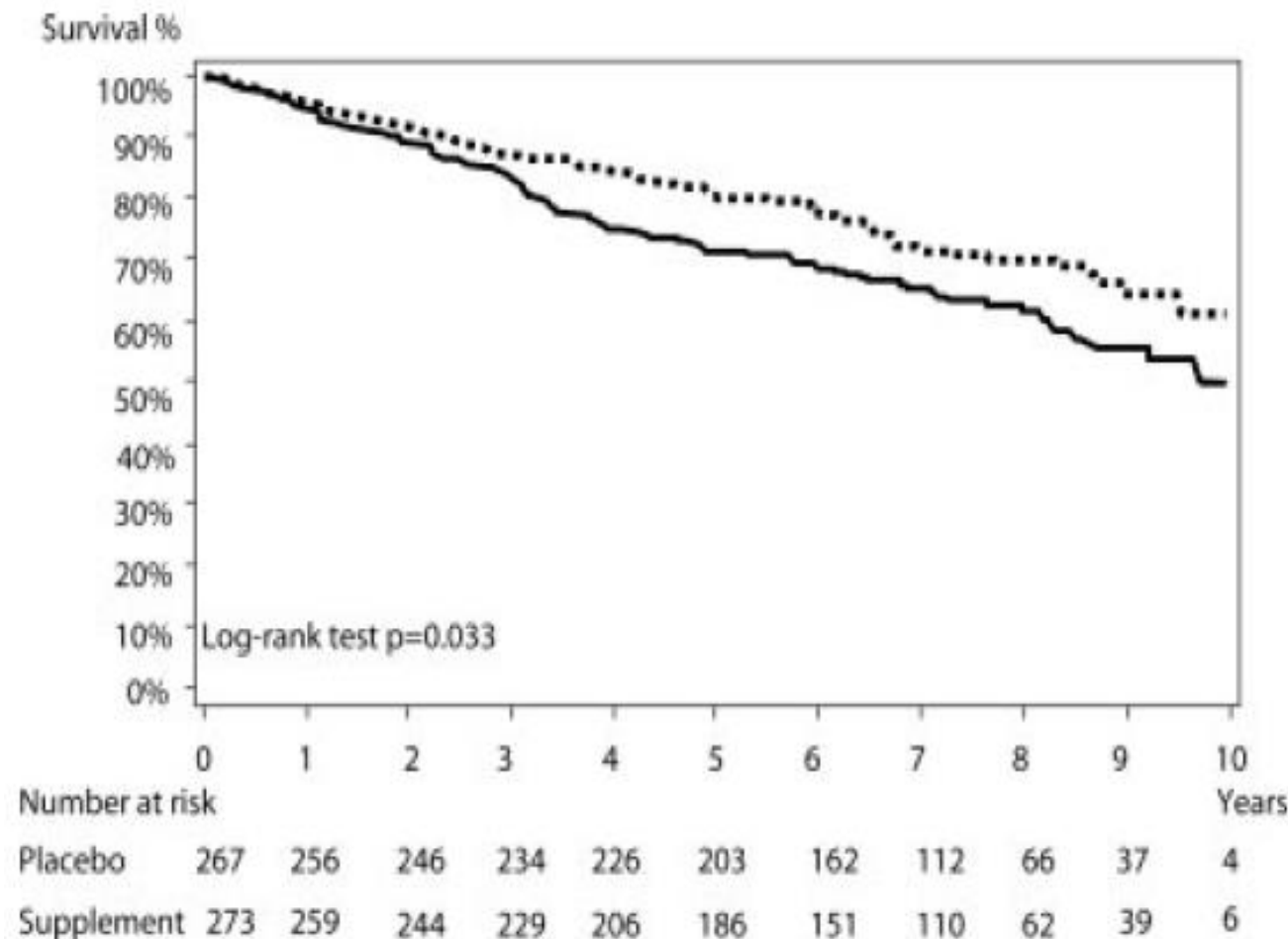
Steven G Newmaster^{1*}, Meghan Grguric², Dhivya Shanmughanandhan³, Sathishkumar Ramalingam³ and Subramanyam Ragupathy^{1*}



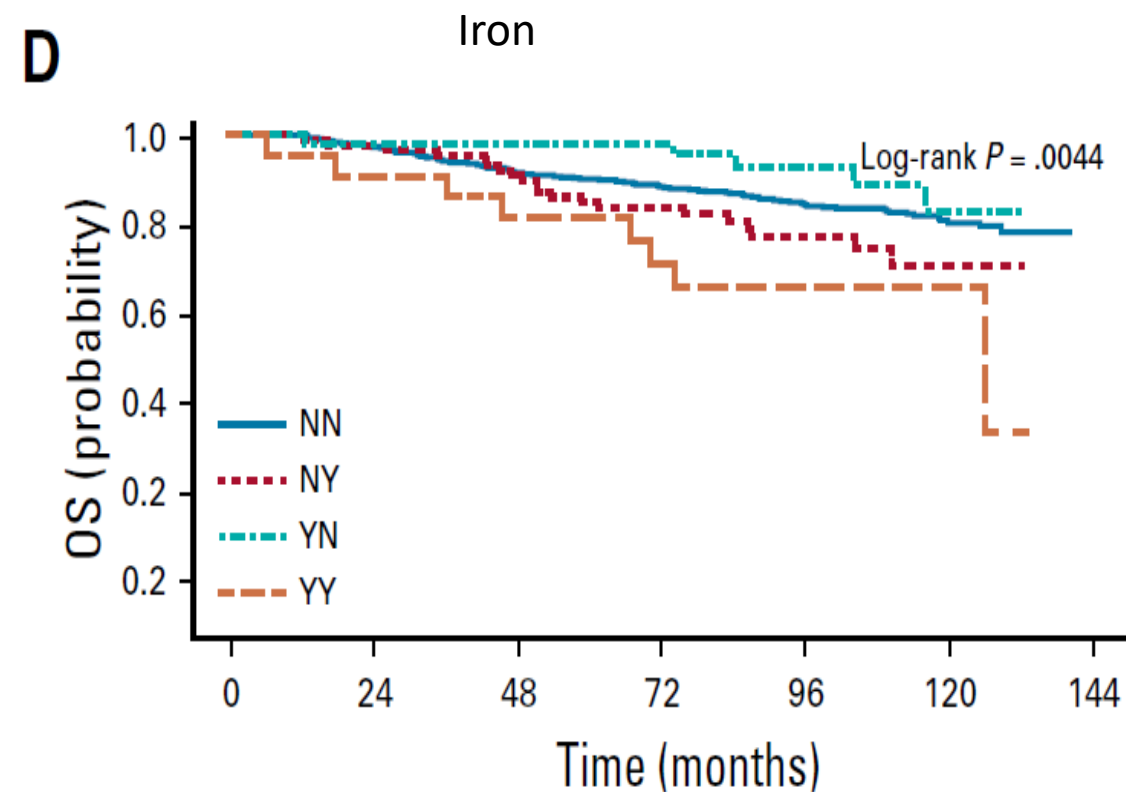
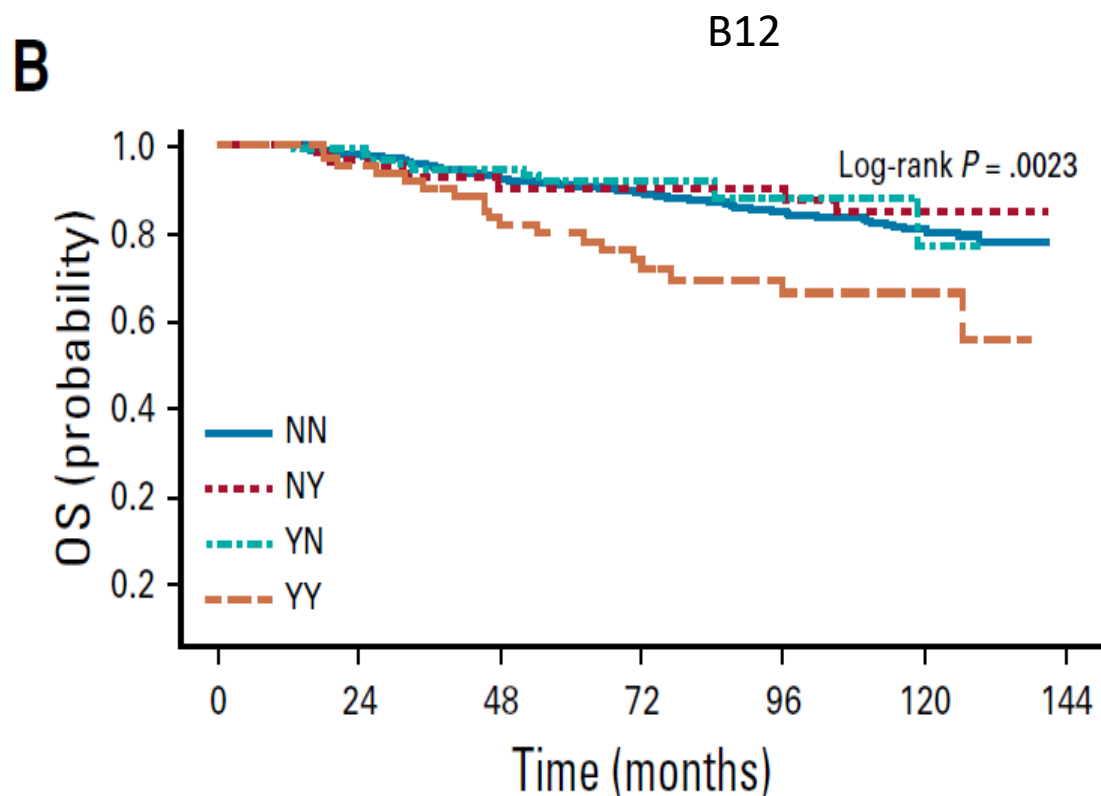
Documented Interactions

- Beta carotene during radiation therapy
- St. John's Wort
 - Irinotecan, docetaxel, imatinib
- Green Tea
 - Bortezomib
- Ginger, garlic, ginseng
 - Anti-coagulation
 - Imatinib and docetaxel

A Randomized Trial of Antioxidant Vitamins to Prevent Second Primary Cancers in Head and Neck Cancer Patients



Dietary Supplement Use During Chemotherapy and Survival Outcomes of Patients With Breast Cancer Enrolled in a Cooperative Group Clinical Trial (SWOG S0221)



National Survey of US Oncologists' Knowledge, Attitudes, and Practice Patterns Regarding Herb and Supplement Use by Patients With Cancer

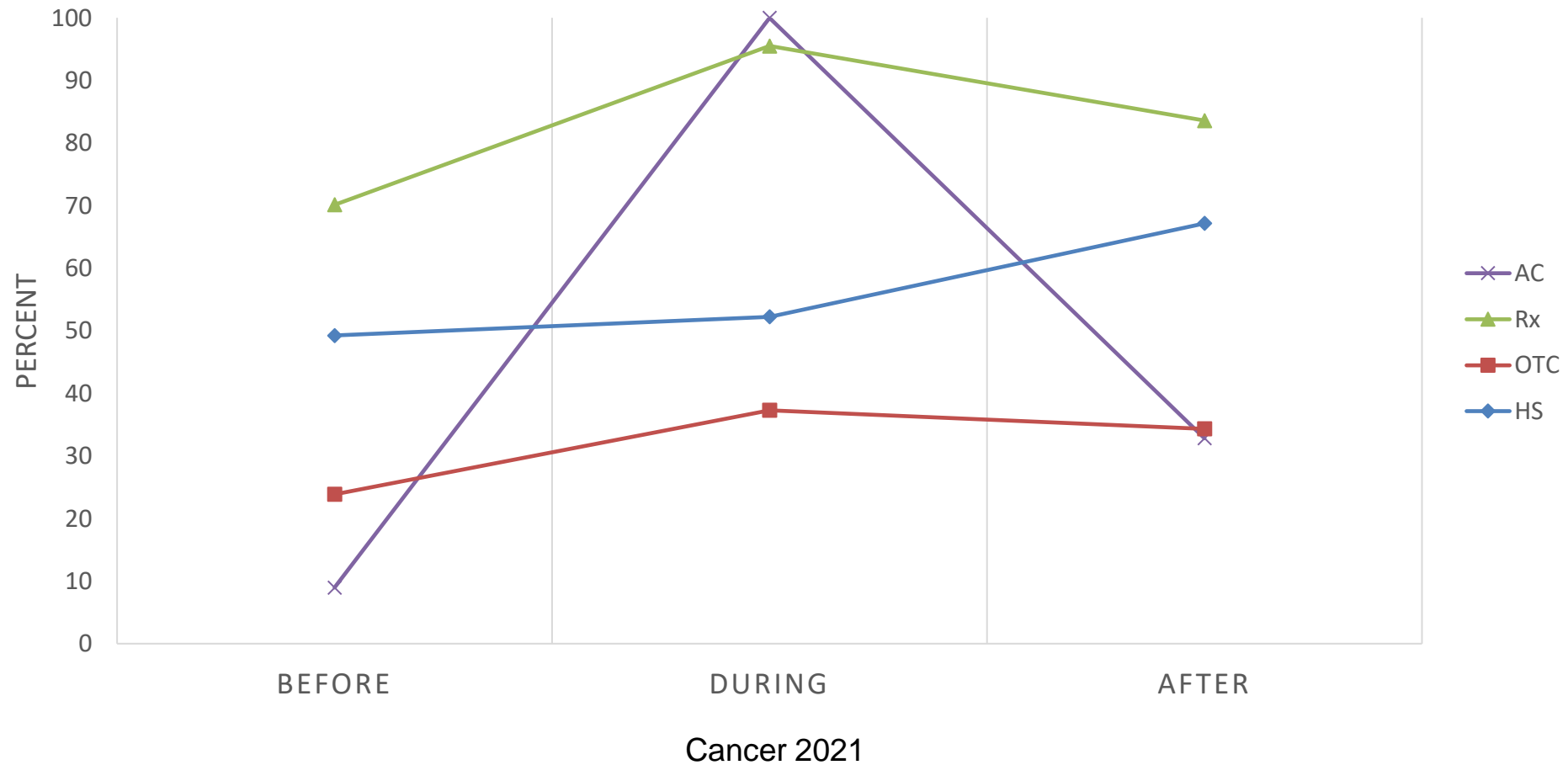
Richard T. Lee, Andrea Barbo, Gabriel Lopez, Amal Melhem-Bertrandt, Heather Lin, Olufunmilayo I. Olopade, and Farr A. Curlin

- 1/3 of patients were using HS during treatment
- 93% of oncologists were concerned about the risk of medication interactions with HS
- Nearly 2/3 reported poor knowledge to answer patients' questions
- <1/2 received any education about HS

Prevalence of Potential Interactions of Medications, Including Herbs and Supplements, Before, During, and After Chemotherapy in Patients With Breast and Prostate Cancer

Richard T. Lee, MD ¹; Nancy Kwon, MS²; Jimin Wu, MS³; Connie To, PharmD⁴; Steven To, PharmD⁴; Russell Szmulewitz, MD⁵; Raffi Tchekmedyian, MD⁶; Holly M. Holmes, MD⁷; Olufunmilayo I. Olopade, MD⁵; Walter M. Stadler, MD ⁵; and Jamie Von Roenn, MD²

MEDICATION USE BEFORE, DURING, AND AFTER CHEMOTHERAPY



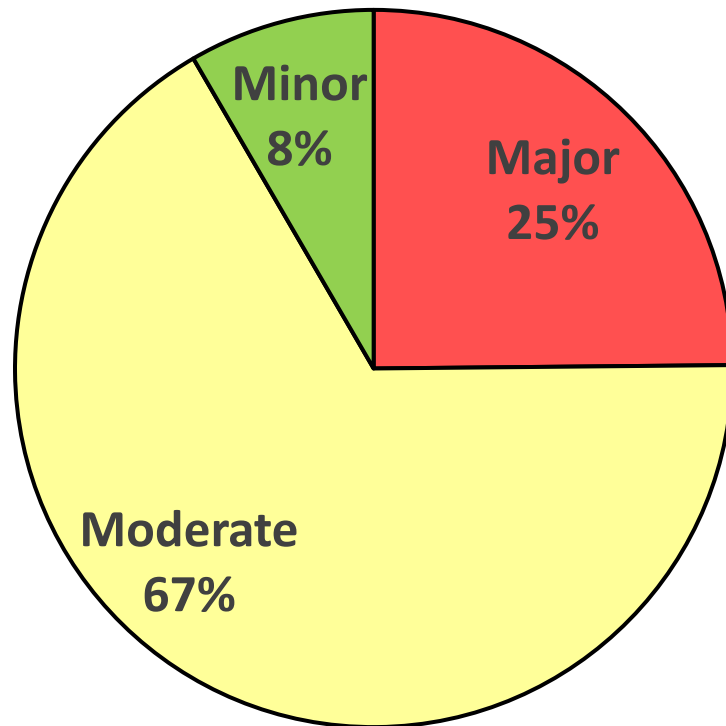
Potential Medication Interactions

	Before	During	After	Total
Total	259	976	512	1,747
Unique	162	507	277	635
<u>Type of Interaction</u>				
AC Tx	16	229	30	377
Rx	177	677	365	1231
OTC	39	116	100	251
HS	183	448	346	977

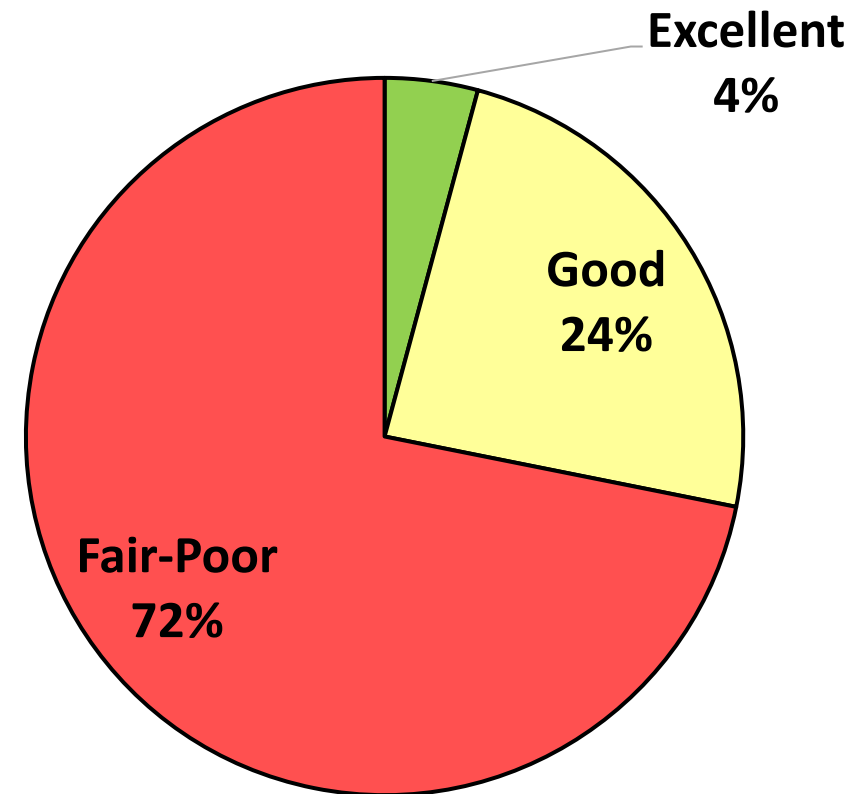
94% prevalence of a PMI

HS Interactions Severity & Documentation Ratings

Severity



Documentation



Supplements vs Prescriptions

	Supplements	Prescription Medicines
Availability	Over-the- Counter	Prescription
Cost	Variable	High
Source of Knowledge	Historical/Expert	Clinical Research
Dosing	Variable	Specific
Quality	Variable	FDA Approval
Indication	General	Specific
Safety	Unclear	Documented
Mechanism of Action	Unclear	Generally Characterized
Clinical Effect	Historical	Clinical Trials

Ginger (*Zingiber officinale*) reduces acute chemotherapy-induced nausea: A URCC CCOP study of 576 patients

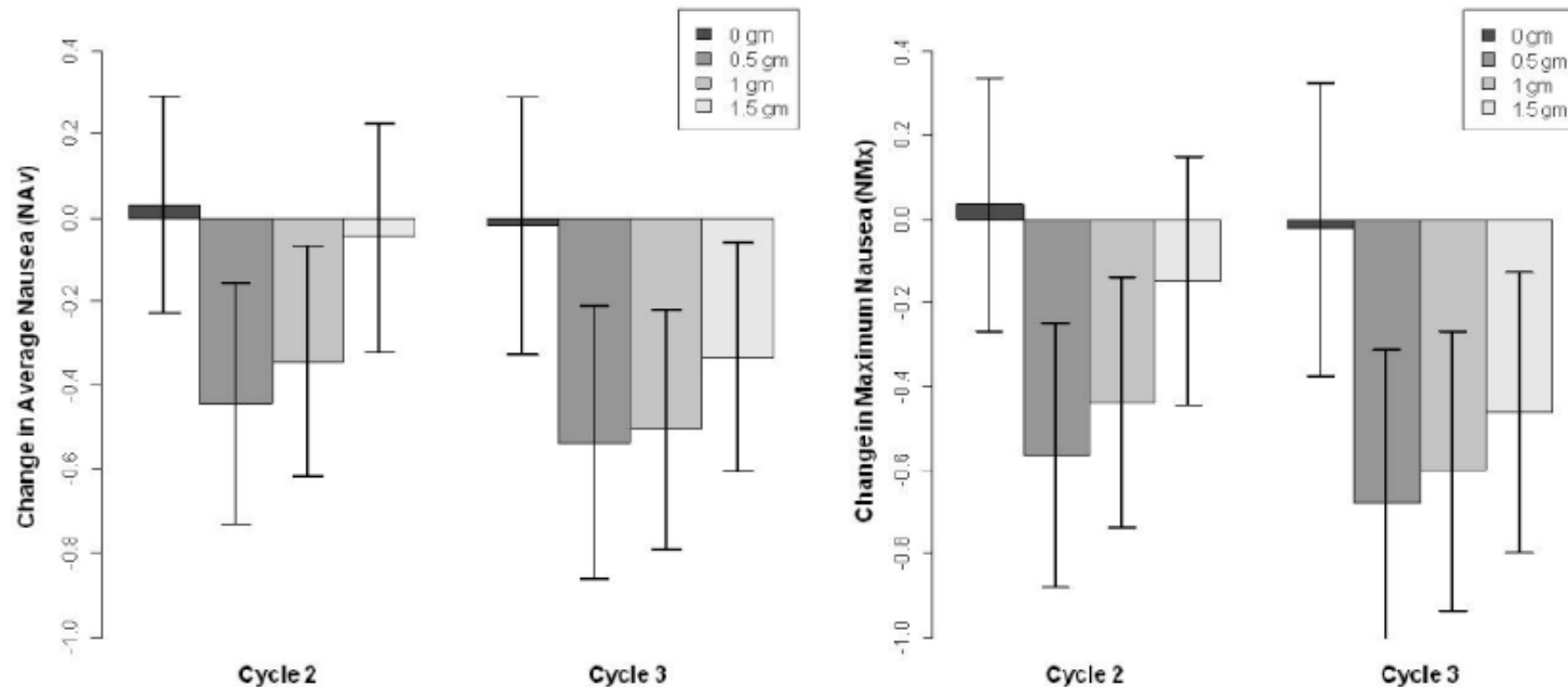
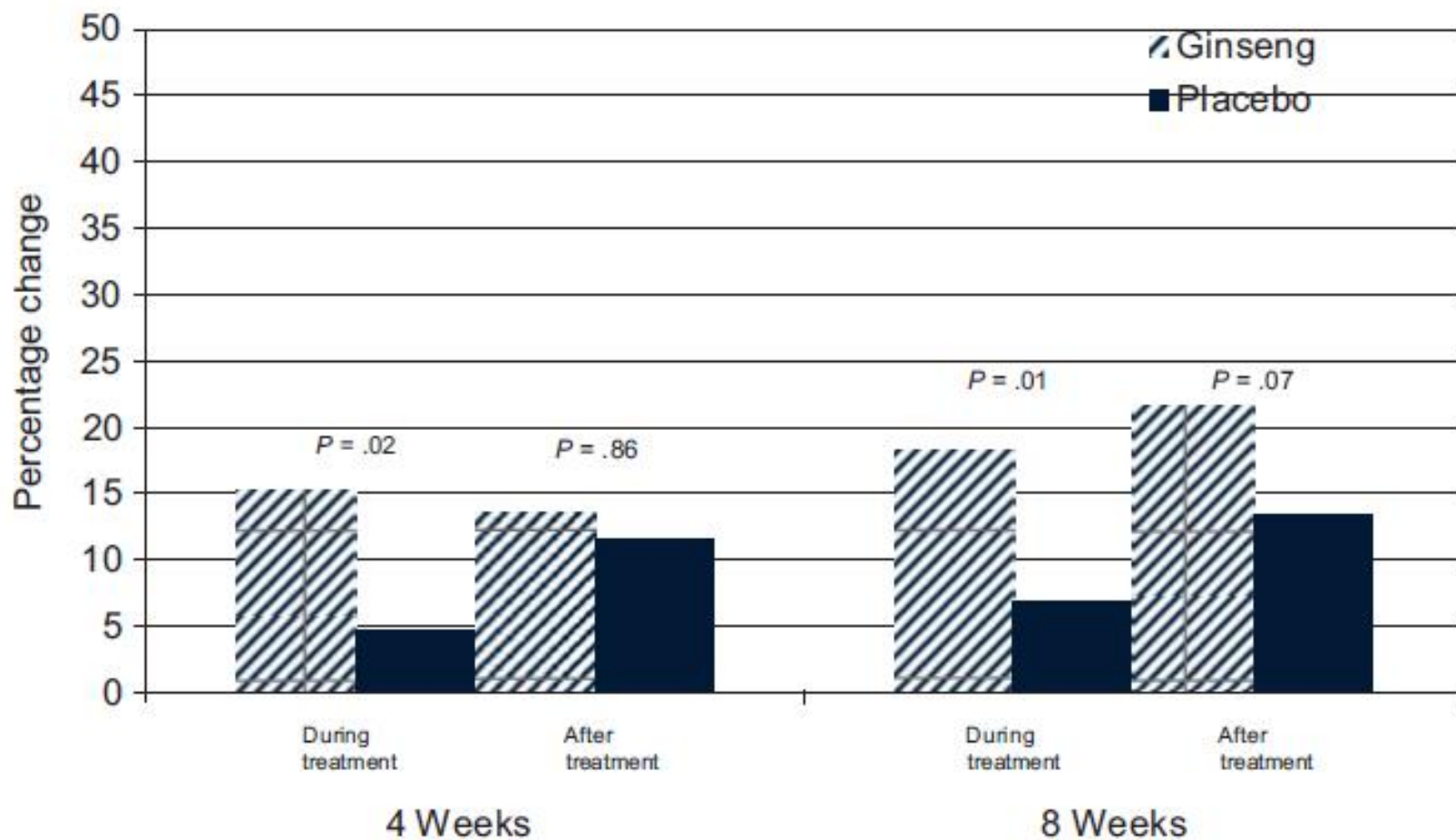


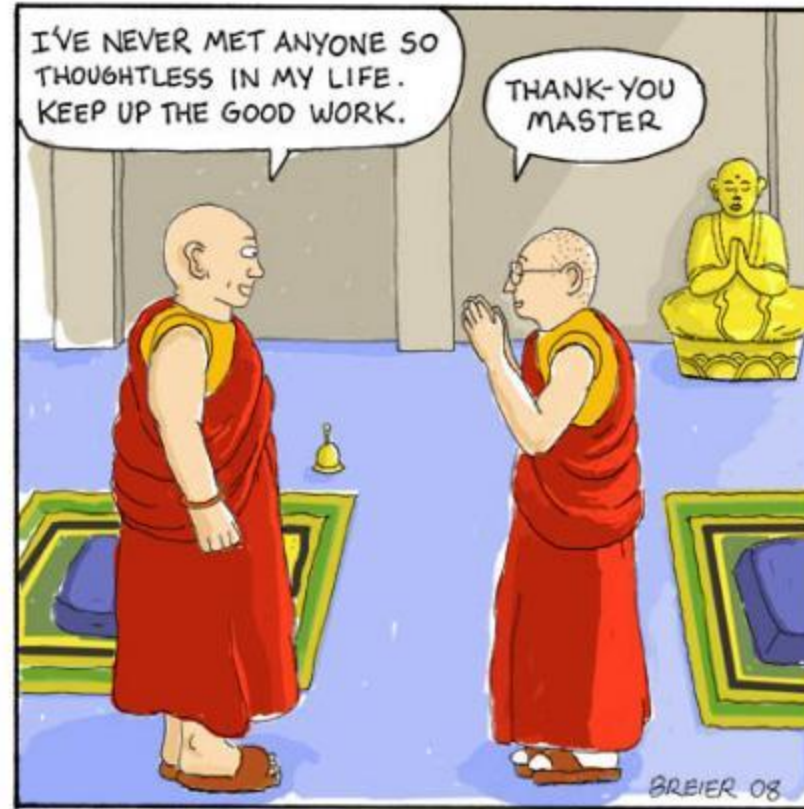
Figure 2. Ginger reduces severity of acute chemotherapy-induced nausea

Wisconsin Ginseng (*Panax quinquefolius*) to Improve Cancer-Related Fatigue: A Randomized, Double-Blind Trial, N07C2



Multivitamin Use Is Not Associated With Cancer Recurrence or Survival in Patients With Stage III Colon Cancer: Findings From CALGB 89803

- 1,038 Stage III Colon cancer patients
- Study evaluated multivitamin use both during and after chemotherapy
- No significant differences found in recurrence, survival, or grade 3/4 side effects from chemotherapy.
 - Fatigue was reduced by 39%



Buddhist Compliment

Mind-Body Practices

- **Stress (A)**
- **Mood Disturbance (A)**
 - Depression
- **Quality of Life (A)**
- **Insomnia (C)**



Adjunctive non-pharmacological analgesia for invasive medical procedures: a randomised trial

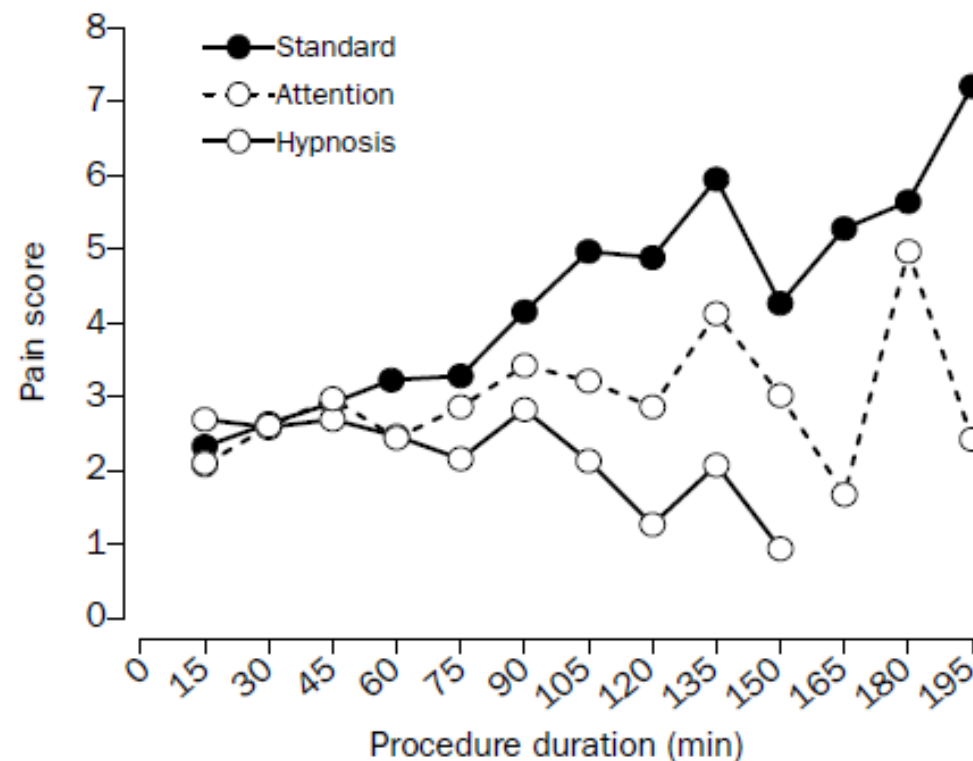


Figure 3: Average pain score as a function of procedure-time interval for each group

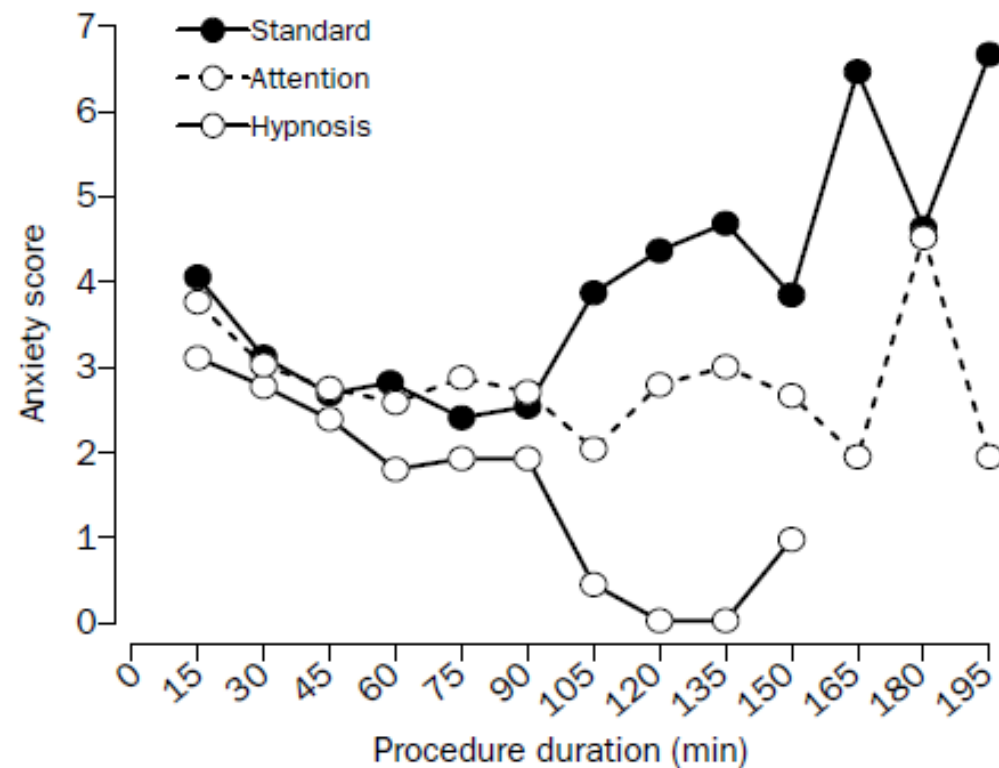
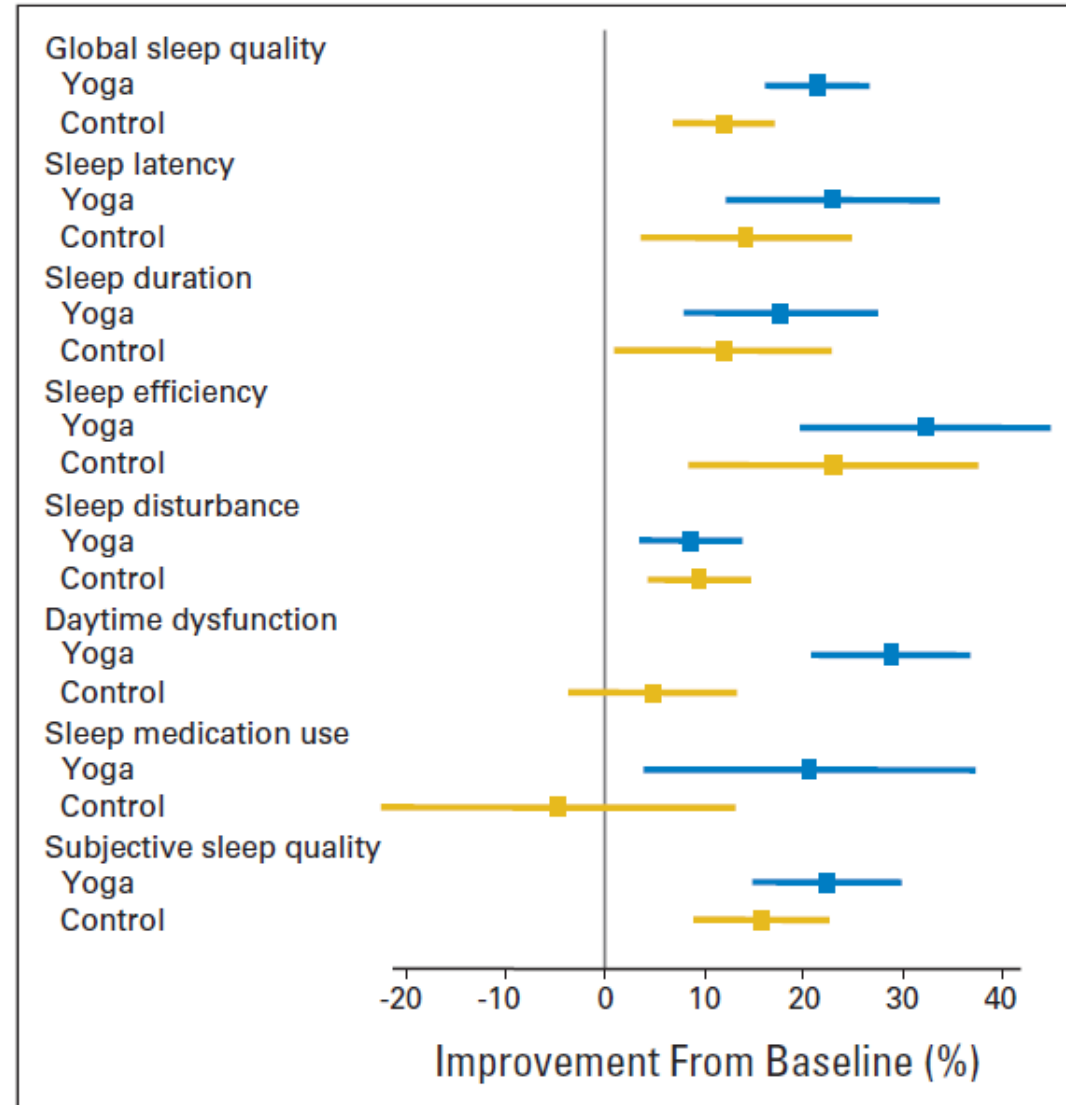
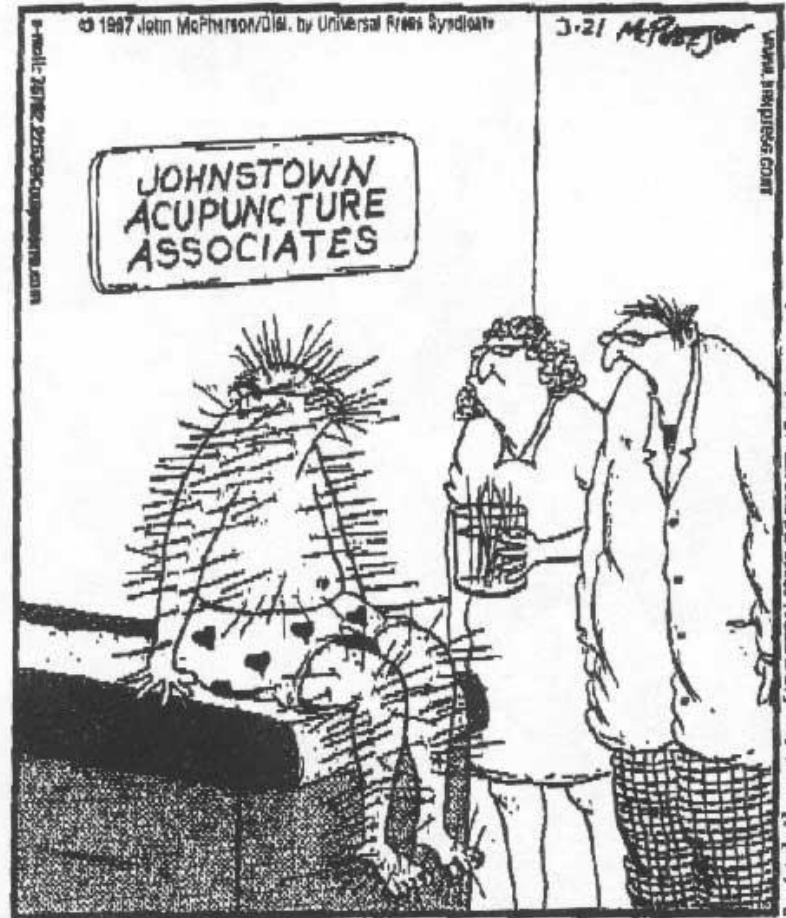


Figure 4: Average anxiety score as a function of procedure-time interval for each group

Multicenter, Randomized Controlled Trial of Yoga for Sleep Quality Among Cancer Survivors



CLOSE TO HOME JOHN McPHERSON



"You gotta be kidding! Your back *still* hurts?!"

Acupuncture

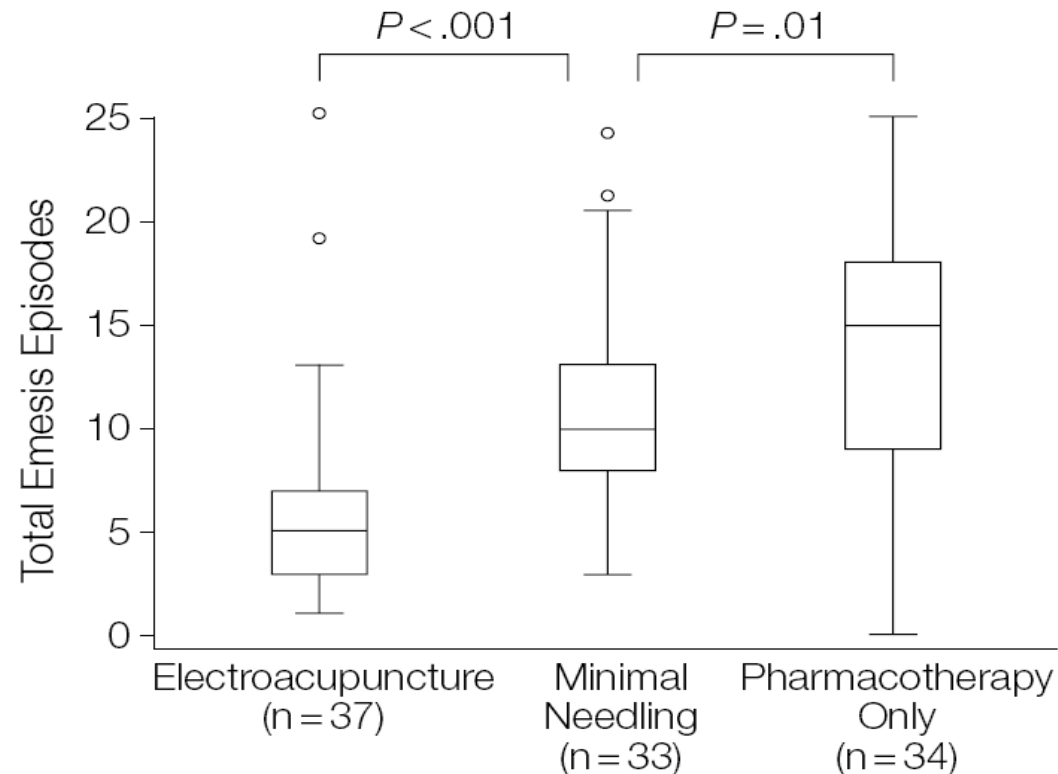
- Nausea (B)
- Pain (C)
- Xerostomia (C)
- Hot Flashes (C)
- Fatigue (C)
- Neuropathy (C)
- Insomnia



Electroacupuncture for Control of Myeloablative Chemotherapy–Induced Emesis

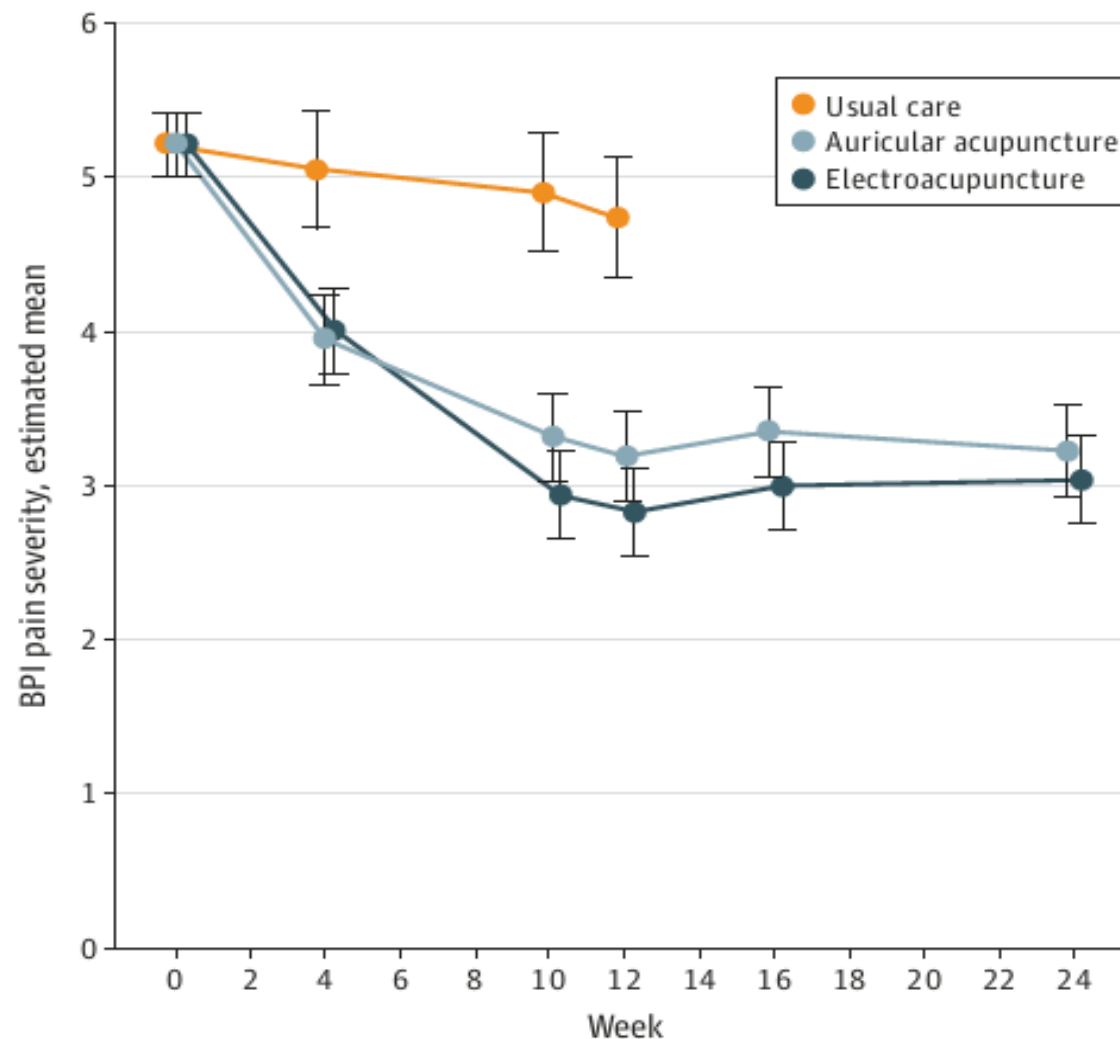
A Randomized Controlled Trial

Figure 2. Distribution of the Total Emesis Episodes Per Person During the 5-Day Study Period by Treatment Groups



Effectiveness of Electroacupuncture or Auricular Acupuncture vs Usual Care for Chronic Musculoskeletal Pain Among Cancer Survivors

The PEACE Randomized Clinical Trial



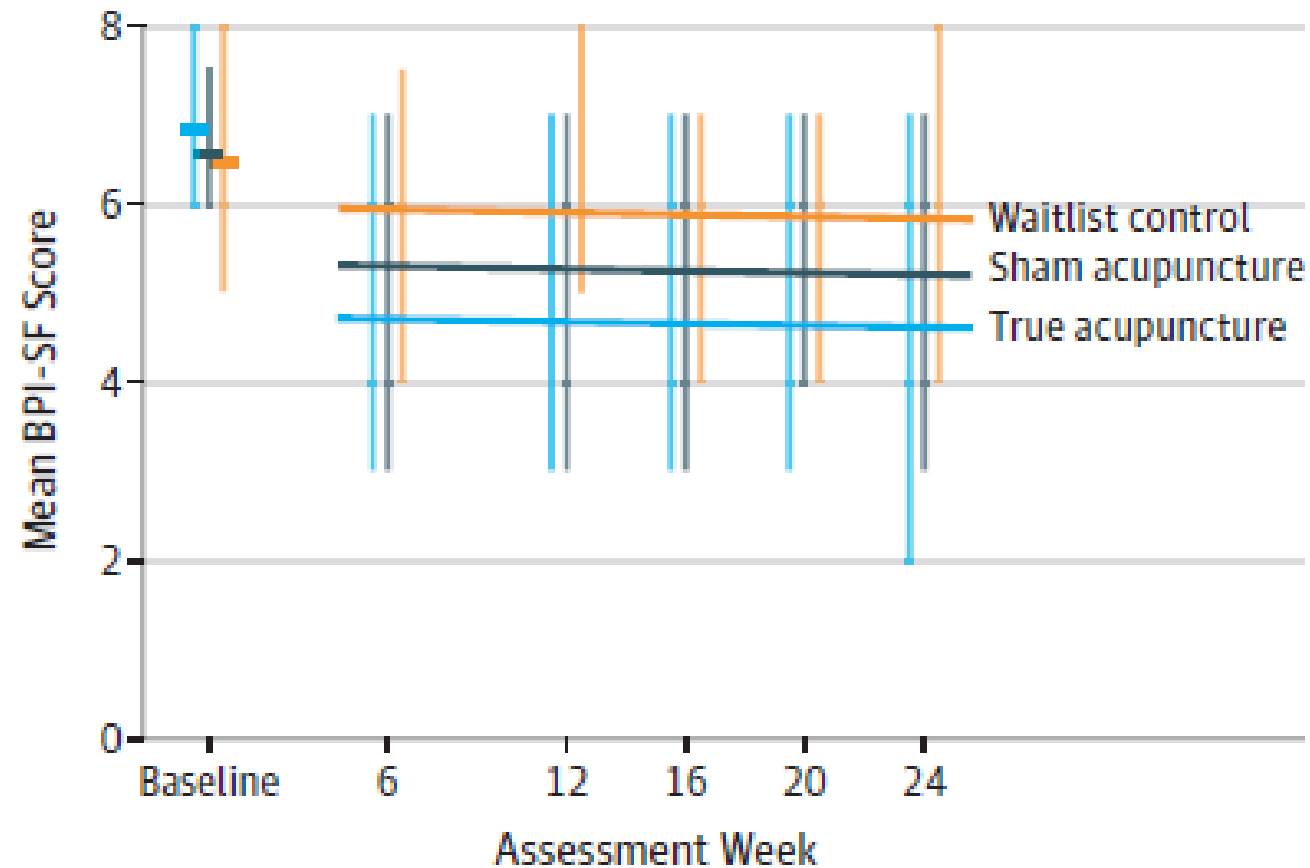
Analgesic Effect of Auricular Acupuncture for Cancer Pain: A Randomized, Blinded, Controlled Trial

Table 3. Mean Pain Intensity on VAS and Average Electrical Potential Difference at Auricular Points at Baseline, at D30, and at D60 According to the Treatment Group

Outcome	Treatment Group					
	Acupuncture (n = 29)		Acupuncture at Placebo Points (n = 28)		Seeds Fixed at Placebo Points (n = 30)	
	Mean	Range	Mean	Range	Mean	Range
Pain intensity on VAS						
Baseline	58	32-100	58	32-94	57	32-98
D30	44	0-75	54	9-100	56	5-89
D60	37	0-92	55	9-98	58	14-100
Average electrical potential difference at auricular points						
Baseline	5.7	3.6-7.8	5.6	3.6-7.2	5.4	3.7-7.2
D30	4.7	1.5-6.1	5.2	0-8.1	5.4	3.0-6.8
D60	3.9	1.7-7.0	5.5*	2.8-7.4	5.4	2.8-7.2

Effect of Acupuncture vs Sham Acupuncture or Waitlist Control on Joint Pain Related to Aromatase Inhibitors Among Women With Early-Stage Breast Cancer

A Worst pain



Effect of Acupuncture vs Sham Procedure on Chemotherapy-Induced Peripheral Neuropathy Symptoms

Symptoms	Acupuncture	Sham Acupuncture	Usual Care
Pain	-1.75 (42%)	-0.91 (22%)	-0.19 (4%)
Tingling	-1.83 (35%)*	-1.22 (22%)	-0.14 (3%)
Numbness	-1.54 (23%)*	-1.52 (24%)*	0.57 (-9%)

- Cancer survivors with ≥ 4 neuropathy
- 8 weeks of acupuncture (10 treatments)

Music Therapy

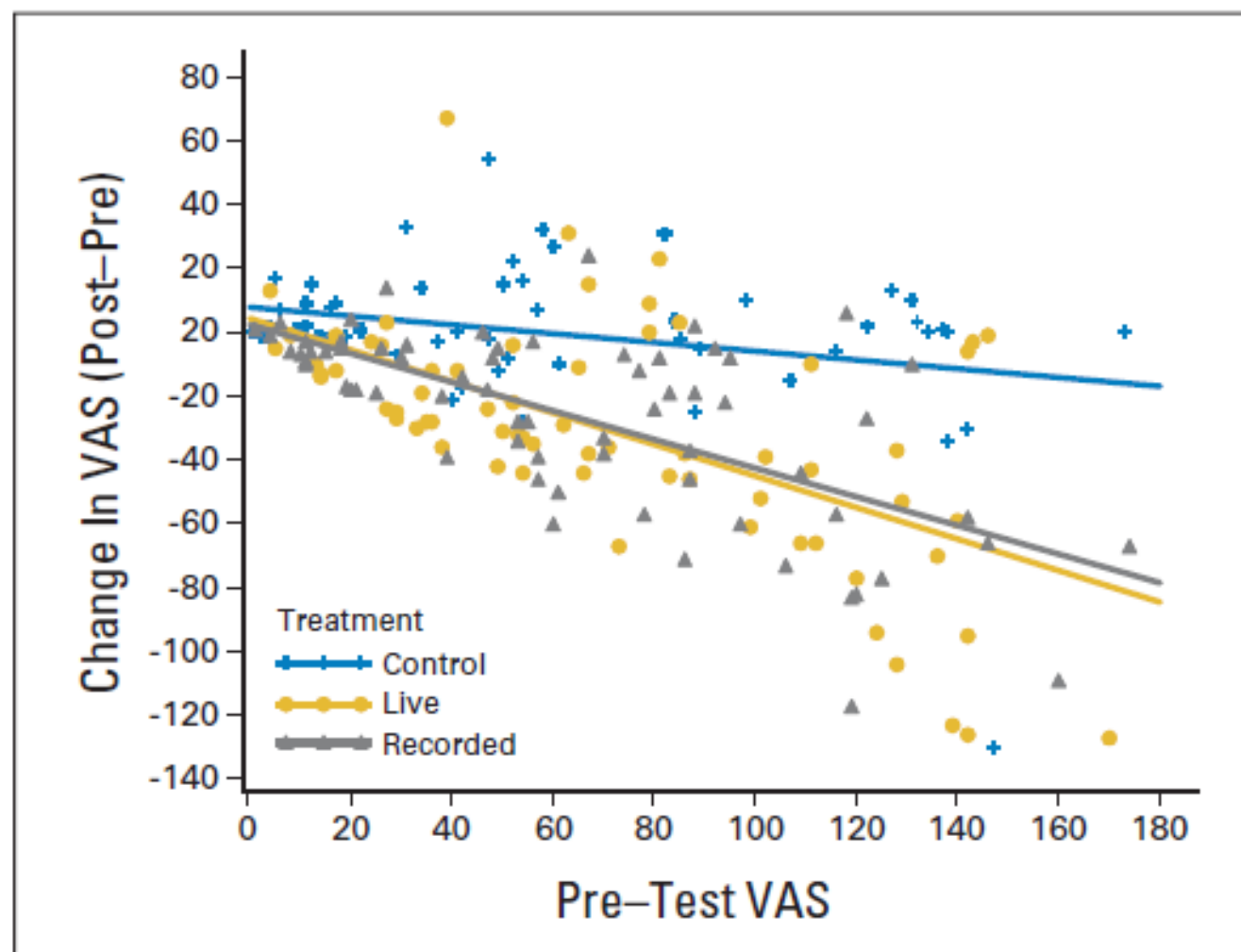


Music Therapy

- **Stress & Anxiety (B)**
- **Mood Disturbance (B)**
 - Depression
- **Quality of Life (C)**
- **Pain (C)**



Effects of Music Therapy on Anesthesia Requirements and Anxiety in Women Undergoing Ambulatory Breast Surgery for Cancer Diagnosis and Treatment: A Randomized Controlled Trial



Music Therapy to Reduce Pain and Anxiety in Children With Cancer Undergoing Lumbar Puncture: A Randomized Clinical Trial

Table 3. Comparison of Pain Scores and Anxiety Scores Before, During, and After the Procedure

	Pain, Mean (Range, SD)			Anxiety, Mean (Range, SD)		
	Music (n = 20)	Control (n = 20)	P Value	Music (n = 20)	Control (n = 20)	P Value
Before	1.2 (0-5, 1.40)	1.75 (0-5, 1.77)	Nonsignificant	8.6 (6-16, 2.78)	13.25 (7-22, 3.73)	<.001
During	2.35 (0-7, 1.90)	5.65 (1-10, 2.50)	<.001			
After	1.2 (0-5, 1.36)	3 (0-7, 2.0)	.003	8.1 (6-13, 2.22)	13.0 (6-21, 4.17)	<.001



Oncology Massage Therapy

- **Mood Disturbance (B)**
 - Depression
- **Anxiety & Stress (C)**
- **Pain (C)**
- **Constipation (C)**
- **Neuropathy**



Walton Pressure Scale



Level 1
Light
Lotioning



Level 2
Heavy
Lotioning



Level 3
Medium
Pressure



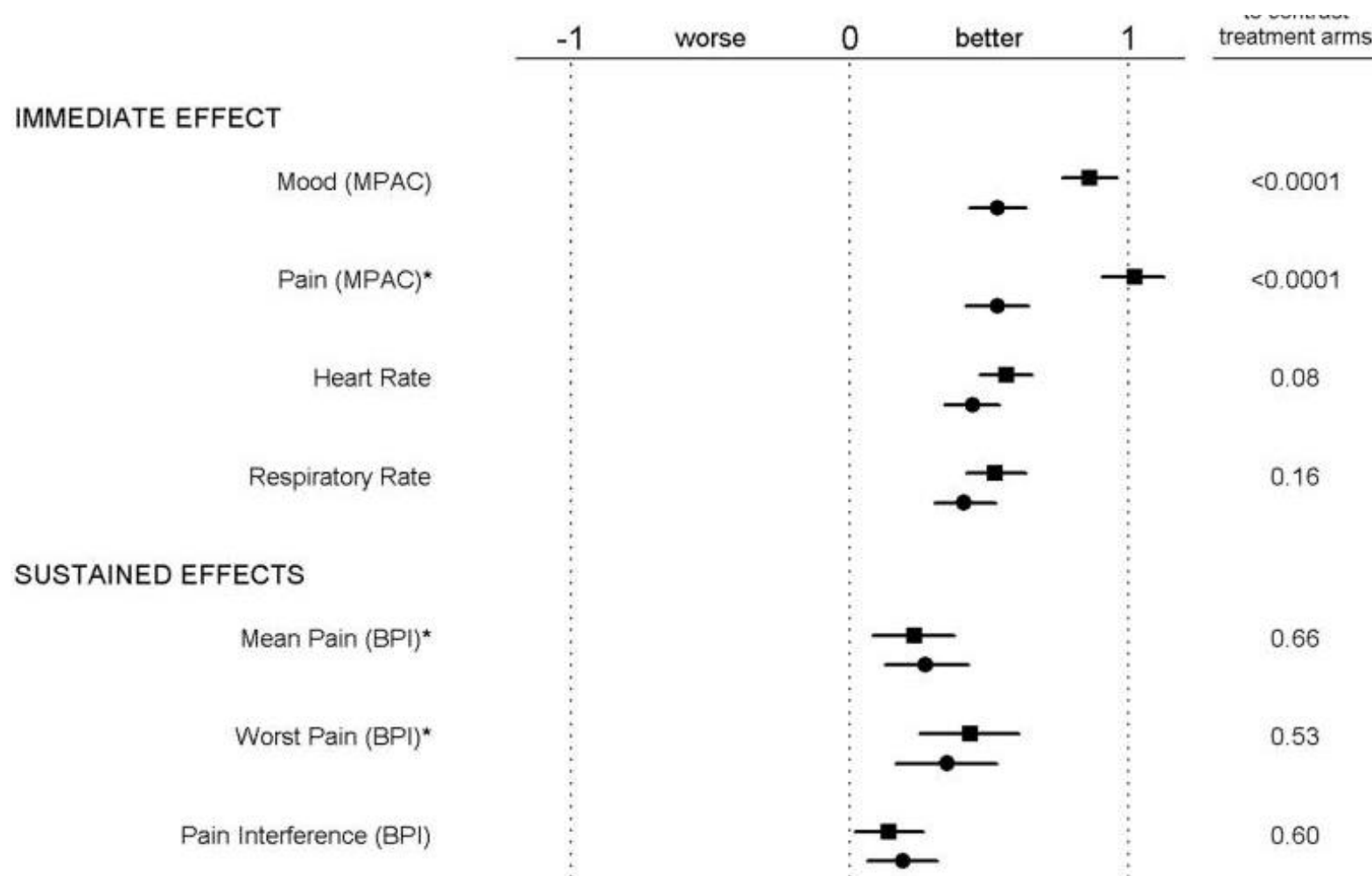
Level 4
Strong
Pressure



Level 5
Deep
Pressure

Massage Therapy versus Simple Touch to Improve Pain and Mood in Patients with Advanced Cancer

A Randomized Trial



Massage Therapy for Symptom Control: Outcome Study at a Major Cancer Center

Barrie R. Cassileth, PhD and Andrew J. Vickers, PhD

Integrative Medicine Service (B.R.C., A.J.V.) and Biostatistics Service (A.J.V.), Memorial Sloan-Kettering Cancer Center, New York, New York, USA

Improvements in Symptom Scores Following Massage Therapy

Symptom	<i>n</i>	Baseline	Post-treatment	Change	Improvement
Presenting ^a	1290	6.6 (2.5)	3.2 (2.7)	3.4 (2.6)	54.1% (34.1)
Pain	1284	3.6 (2.9)	1.9 (2.2)	1.7 (2)	40.2% (40.9)
Fatigue	1263	4.7 (2.9)	2.7 (2.7)	2.1 (2.2)	40.7% (39.1)
Anxiety	1273	4.6 (3.1)	1.8 (2.2)	2.8 (2.5)	52.2% (39.5)
Nausea	1255	1.4 (2.4)	0.7 (1.6)	0.7 (1.6)	21.2% (38.3)
Depression	1254	2.4 (2.8)	1.2 (2)	1.2 (1.9)	30.6% (41.0)
Other	105	6.5 (2.5)	3.4 (2.8)	3.1 (2.8)	46.6% (36.9)

Figures are given as mean (standard deviation).

^aDefined as the symptom with the highest score at baseline.

National Comprehensive Cancer Network (NCCN) Guidelines for Palliative Care

- Pain
 - Acupuncture, MBSR, relaxation therapy
- Nausea & Vomiting
 - Acupuncture, hypnosis, and CBT
- Dyspnea
 - Stress management and relaxation therapy



INTEGRATIVE INTERVENTIONS

Consider integrative interventions in conjunction with pharmacologic interventions as needed. Integrative interventions may be especially important in vulnerable populations (eg, frail, elderly) in whom standard pharmacologic interventions may be less tolerated or based on patient preference. The utility of integrative interventions underscores the necessity for pain management to be carried out with a team approach that contains a wide range of treatment options. ([See PAIN-L](#))

Pain likely to be relieved or function improved with cognitive, physical, or interventional modalities:

- **Cognitive modalities**
 - Mindfulness-based stress reduction (MBSR)
 - Imagery
 - Hypnosis
 - Biofeedback
 - Acceptance-based training
 - Distraction training
 - Relaxation training
 - Active coping training
 - Graded task assignments, setting goals, pacing, and prioritizing
 - Cognitive behavioral therapy (CBT), cognitive restructuring
 - Behavioral activation
- **Nutritional modalities**
 - Nutrition consult
 - Dietary recommendations
 - Assess and educate on herbal, botanical, and dietary supplements
- **Spiritual care** ([See NCCN Guidelines for Distress Management](#))
- **Physical modalities**
 - Bed, bath, and walking supports
 - Positioning instruction
 - Instruction in therapeutic and conditioning exercise
 - Energy conservation, pacing of activities
 - Massage
 - Heat and/or ice
 - Transcutaneous electrical nerve stimulation (TENS)
 - Acupuncture, electro-acupuncture, or acupressure
 - Ultrasonic stimulation
- [See Interventional Strategies \(PAIN-M\)](#)

Note: All recommendations are category 2A unless otherwise indicated.

Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

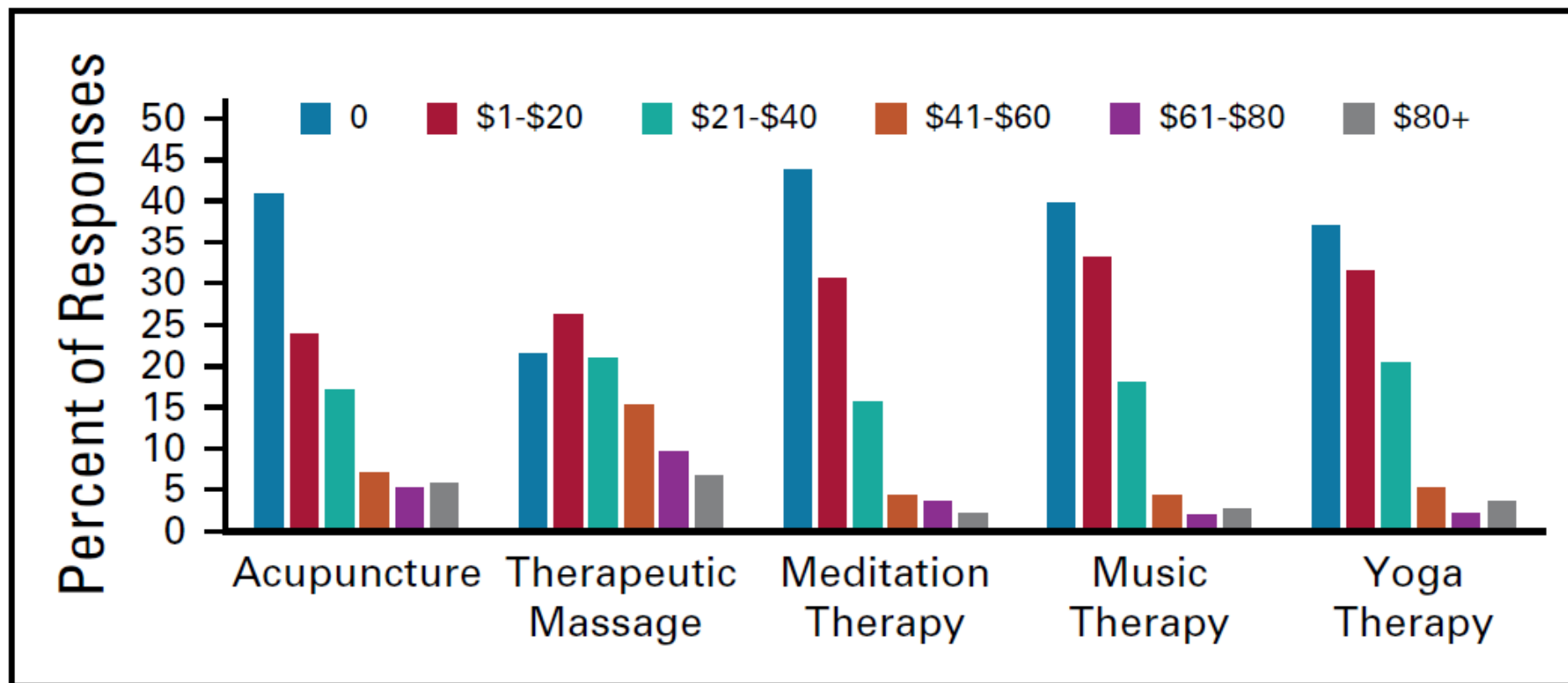
Integrative Medicine for Pain Management in Oncology: Society for Integrative Oncology–ASCO Guideline

- Acupuncture should be offered to patients experiencing AI-related joint pain in breast cancer
- Acupuncture may be offered to patients experiencing general pain or musculoskeletal pain from cancer
- Reflexology or acupressure may be offered to patients experiencing pain during systemic therapy for cancer treatment

Integrative Medicine for Pain Management in Oncology: Society for Integrative Oncology–ASCO Guideline

- Massage may be offered to patients experiencing chronic pain following breast cancer treatment
- Hypnosis may be offered to patients experiencing procedural pain in cancer treatment or diagnostic workups
- Massage may be offered to patients experiencing pain during palliative and hospice care

Willingness to Pay for Integrative Services



Summary

- Integrative Oncology is one component of a spectrum of supportive care approaches to help optimize cancer care
- Supportive and Integrative Oncology services need to work in coordination with ongoing treatment
- Innovative models of service delivery and research are needed to demonstrate the value of Integrative Oncology

Thank You

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