UCSD Center for Integrative Medicine

Integrative Oncology 2013

Program Syllabus

Sponsored by:

UC San Diego
School of Medicine

The University of California, San Diego School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The University of California, San Diego School of Medicine designates this live activity for a maximum of 12 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity. APA (Full attendance is required): The University of California, San Diego School of Medicine, Department of Psychiatry is approved by the American Psychological Association to sponsor continuing education for psychologists. The University of California, San Diego School of Medicine, Department of Psychiatry maintains responsibility for this program and its content.
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Course Description

A landmark event hosted by the UC San Diego Center for Integrative Medicine, *Integrative Oncology 2013* discusses the complex relationship between tumor, host, and dietary, lifestyle, and environmental factors, and what can be done to foster an “anti-cancer” diet and lifestyle to help rectify imbalances and reduce the drivers of cancer. Integrative Oncology addresses all aspects of cancer care, using evidence from cancer epidemiology, basic science, and clinical research – together with the ancient wisdom of natural healing systems such as Chinese medicine and Ayurveda.

Speakers will focus on three core areas in which they encourage active self-care and support a whole person approach: (1) Diet and lifestyle for cancer prevention, (2) Evidence-based integrative therapies and (3) Integrative modalities that improve symptoms and enhance the well-being, functioning, and quality of life of cancer patients. Topics include: optimal nutrition, physical activity, massage, manual therapies, acupuncture, herbs, biofeedback, meditation, guided imagery, integrative psychiatry, biofield therapies, expressive arts, yoga, and tai chi.

Target Audience

Health professionals working in the cancer field, cancer survivors, and community members will all benefit from attending this conference.

Needs Assessment

Clearly, there will always be a critical need for proven, life-saving treatments targeted at eradicating or controlling the spread of the disease itself. However, there is also a need for empowering approaches that encourage active patient self-care and support whole person health. Complementary and Alternative Medicine (CAM) use has skyrocketed over the past two decades in the US. Studies have reported higher rates of CAM therapy use among patients with serious illnesses, especially cancer. And there is a growing awareness that these approaches are an integral part of optimal cancer care. Health professionals today need to be knowledgeable about the evidence base by which CAM and lifestyle medicine become incorporated into various clinical settings, and thereby becomes defined as Integrative Medicine. Based on recommendations by the National Institutes of Health and other sources, gaps exists between research findings (specifically, in regard to integrative approaches to cancer prevention, treatment, and supportive care), and the application of those recommendations and findings to the realms of medical knowledge and performance. This conference was designed to draw upon latest research and findings in the field to help rectify this practice gap. The field of Integrative Oncology has enormous transformative potential - not only for cancer care but also for healthcare as a whole. However, realizing this potential requires the involvement not only of patients and health care providers, but also of their partners, families, friends, and the community as a whole.

For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
Objectives

At the conclusion of this activity, participants should be able to:

- Describe the research supporting integrative cancer prevention & treatment
- Apply integrative philosophies to improve cancer patient care
- Recommend appropriate integrative services & lifestyle medicine to patients
- Translate integrative medicine research into actionable wellness plans

Cultural and Linguistic Competency

It is the policy of the University of California, San Diego School of Medicine to ensure balance, independence, objectivity and scientific rigor. All persons involved in the selection, development and presentation of content are required to disclose any real or apparent conflicts of interest. All conflicts of interest will be resolved prior to an educational activity being delivered to learners through one of the following mechanisms 1) altering the financial relationship with the commercial interest, 2) altering the individual’s control over CME content about the products or services of the commercial interest, and/or 3) validating the activity content through independent peer review. All persons are also required to disclose any discussions of off label/unapproved uses of drugs or devices. Persons who refuse or fail to disclose will be disqualified from participating in the CME activity.

This activity is in compliance with California Assembly Bill 1195 which requires continuing medical education activities with patient care components to include curriculum in the subjects of cultural and linguistic competency. Cultural competency is defined as a set of integrated attitudes, knowledge, and skills that enables health care professionals or organizations to care effectively for patients from diverse cultures, groups, and communities. Linguistic competency is defined as the ability of a physician or surgeon to provide patients who do not speak English or who have limited ability to speak English, direct communication in the patient’s primary language. Cultural and linguistic competency was incorporated into the planning of this activity. Additional resources on cultural and linguistic competency and information about AB1195 can be found on the UCSD CME website at http://cme.ucsd.edu.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
### Agenda

**SATURDAY, APRIL 6**

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<thead>
<tr>
<th>Time</th>
<th>Session I – Dietary and Lifestyle Modification in Cancer Prevention</th>
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<tbody>
<tr>
<td>8 a.m.</td>
<td>Registration &amp; Breakfast</td>
</tr>
<tr>
<td>9 a.m.</td>
<td>Opening remarks (Scott Lippman, M.D.)</td>
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<tr>
<td>9:15 a.m.</td>
<td>The role of diet in the development of cancer (T. Colin Campbell, Ph.D.)</td>
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<td></td>
<td>Synthesis of findings and lessons learned from basic science and large-scale population research on diet and cancer; discussion of the China Study</td>
</tr>
<tr>
<td>10 a.m.</td>
<td>Dietary prevention of cancers of the breast, prostate, and colon (Rowan Chlebowski, M.D., Ph.D.)</td>
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<td></td>
<td>Evidence and guidelines for dietary prevention of some of the most common human malignancies; findings from the WINS Study</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>11 a.m.</td>
<td>Role of the mind in cancer development (Sheila Patel, M.D.)</td>
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<td>Can thoughts or emotions influence the development of cancer? Latest findings from the field of Psychoneuroimmunology</td>
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<tr>
<td>11:45 a.m.</td>
<td>Putting prevention into practice (Lauray MacElhern and Gordon Saxe, M.D., Ph.D.)</td>
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<tr>
<td></td>
<td>Discussion of CIM’s Natural Healing &amp; Cooking program, followed by a whole food, plant-based cooking demonstration</td>
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<tr>
<td>12:30 p.m.</td>
<td>Healthy lunch</td>
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For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
Afternoon Session II – Integrative Medicine as Adjunctive Cancer Therapy

2 p.m. The Chinese Medical Approach to Cancer (Edward Neal, M.D., L.Ac.)
Description of how cancer is viewed from the lens of Classical Chinese medicine, as well as an overview of traditional strategies for its treatment

2:45 p.m. Dietary & mind-body combined intervention (Gordon Saxe, M.D., Ph.D.)
(1) Overview of behavioral interventions combining counseling, education, and support in adoption of whole food, plant-based diet with mind-body disciplines. (2) Findings of research examining intervention effects on disease progression and tumor metastasis. (3) Possible biological mechanisms. (4) Indications for use and timing of intervention.

3:30 p.m. Break

3:45 p.m. Naturopathic therapeutics for cancer
(Leanna Standish, Ph.D., N.D., L.Ac.)
Evidence and recommendations for use of specific foods, herbs, and dietary supplements, hydrotherapy, poultices, and other elements of natural self-care

4:30 p.m. Case presentations moderated by Gordon Saxe, M.D., Ph.D., M.P.H.
(Norman Arnold, Marlene Marcello-McKenna, Bhava Ram, Glenn Sabin)
Inspiring medically documented stories of “miraculous” recovery and long-term survival from metastatic cancer that embody the principles of integrative medicine

5:15 p.m. Panel discussion
Discussion of lessons that can be drawn from best cases – and other aspects of the day’s proceedings – and applied more broadly in clinical practice

6:15 p.m. – Day 1 conference ends - Evening Reception begins, featuring local chefs who demonstrate recipes and tastings from “around the world” of San Diego’s healthiest, and most delicious local cuisines. Join the drum circle and art corner to keep up the inspiration!

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
SUNDAY, APRIL 7

Session III – The Use of Integrative Medicine in Supportive Care of Cancer Patients

8 a.m. Registration & Breakfast

9 a.m. Opening remarks (Rusty Kallenberg, M.D.)

9:15 a.m. Use of integrative medicine in pediatric oncology and in bone marrow transplant patients (John Wagner, M.D.)
Discussion of how integrative modalities can offer help even to the most severely ill patients and how an open, evidence-based approach can help identify new safe and effective uses

10 a.m. Biofield therapies in cancer care (Shamini Jain, Ph.D.)
Overview of the biological rationale and scientific evidence for clinical effectiveness of biofield (indirect and remote) therapies on symptom relief and quality of life of ovarian and other cancer patients

10:30 a.m. Break

10:45 a.m. Cannabis in Pain and Palliative Care (Donald Abrams, M.D.)
Physicians in 18 states and the District of Columbia can now recommend medicinal cannabis for a variety of patient conditions. This session will explore the evidence regarding the use of cannabis in the treatment of pain and for management of symptoms frequently encountered in patients with cancer.

11:15 a.m. Overview of integrative modalities in the support of cancer patients (Dan Vicario, M.D.)
Description of integrative modalities employed by the San Diego Cancer Center and discussion of how they are employed in patient care

For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
11:45 a.m. Self-expression to promote cancer wellness  
( Ellen Beck, M.D. and Ruth Westreich)  
Discussion of expressive therapies including counseling, journaling, music, and art to promote healing and wellness of cancer patients

12:15 p.m. It Takes a Village to Cure a Cancer: The Essential Role of Community in Cancer Care (Joseph V. Raffa, Ed.D. and Gordon Saxe, M.D., Ph.D., M.P.H.)  
Discussion of: (a) how a strong, connected community provides the healthy soil in which cancer cannot thrive; (b) need for education of the public regarding integrative approaches (diet, lifestyle, etc.) to cancer prevention, treatment, and patient support; (c) role of community members (spouses/partners, families, friends, etc.) in promoting health and supporting those with cancer; and (d) learning from pooled/shared data and collective wisdom and experience.

12:45 conference ends – Lunch on your own
Faculty List

Course Directors
Gordon Saxe, M.D., Ph.D., M.P.H.
Preventive and Integrative Medicine Physician
Cancer Epidemiologist
Founding Member & Director of Research, Center for Integrative Medicine
Medical Director and Co-founder, Natural Healing & Cooking Program
UC San Diego

Lauray MacElhern
Managing Director, Center for Integrative Medicine
Co-founder, Natural Healing & Cooking Program
UC San Diego

Gene Kallenberg, M.D.
Chief, UCSD Division of Family Medicine
Director, UCSD Center for Integrative Medicine
Clinical Professor of Medicine, School of Medicine Department of Family and Preventive Medicine
Family and Integrative Medicine Physician
UC San Diego

Visiting Faculty
Donald Abrams, M.D.
Integrative Medical Oncologist
Director, Integrative Oncology Research Program, UCSF Osher Center
Chief of Hematology-Oncology, San Francisco General Hospital
Co-editor, Integrative Oncology

T. Colin Campbell, Ph.D.
Professor Emeritus, Cornell University
Author of the National Academy of Sciences report "Diet, Nutrition, and Cancer"
Author of the New York Times bestseller The China Study

Rowan T. Chlebowski, M.D., Ph.D
Chief, Division of Medical Oncology and Hematology, Harbor-UCLA Medical Center
Director, Women's Intervention Nutrition Study (WINS)
Chair, ASCO Cancer Prevention Committee

Marlene Marcello-McKenna
Holistic Health Counselor
Cancer survivor and Author

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Edward Neal, M.D., L.Ac.
Internal Medicine physician and Chinese Medicine doctor
Associate Faculty Member, Department of Family Medicine, Oregon Health Sciences University
Co-founder and Director, International Society for Classical Acupuncture

Sheila Patel, M.D.
Medical Director and Director of Health Programming, Chopra Center for Wellbeing
Ayurvedic and Family Medicine Physician

Joseph V. Raffa, Ed.D.
Director the San Diego/Imperial Counties Office of Cancer Control (SANDIOCC)
Consultant to the University of California San Francisco Cancer Research Institute on the system model design for California mandatory reporting
Director of the San Diego County Cancer Navigator

Bhava Ram
Former award-winning NBC News foreign correspondent
Cancer survivor and Author

Glenn Sabin
Founder, FON Therapeutics
Board member of the Society for Integrative Oncology
Cancer survivor

Leanna J. Standish, N.D., Ph.D., L.Ac., FABNO
Neuroscientist and Naturopathic Physician
Medical Director of the Bastyr Integrative Oncology Research Center (BIORC)
Clinical Research Professor at the Bastyr University Research Institute
Founding Board Member of the Oncology Association of Naturopathic Physicians
CAM Oncology Advisor to MD Anderson Cancer Center

John E. Wagner, M.D.
Professor of Pediatrics, University of Minnesota (UM) School of Medicine
Director, UM Division of Hematology-Oncology and Blood Marrow Transplantation
Co-Director; UM Center for Translational Medicine
Hageboeck /Children's Cancer Research Fund Endowed Chair
UM McKnight Presidential Chair

Ruth Westreich
President, The Westreich Foundation and Board Member of: UCSD Center for Integrative Medicine, Bravewell Collaborative, Samueli Institute, University of San Diego Institute for Education and Research, Academic Consortium for Complementary and Alternative Health Care, Institute for Palliative Medicine and the San Diego Hospice; and expert in visual and auditory art therapies

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
UCSD Faculty
Ellen Beck, M.D.
Co-founder and Director, UCSD Student-Run Free Clinic Project
Clinical Professor of Medicine, School of Medicine Department of Family and Preventive Medicine
Founding Member and Education Director, Center for Integrative Medicine

Shamini Jain, Ph.D.
Assistant Adjunct Professor, School of Medicine Department of Psychiatry
Member, Cancer Prevention and Control Program, Moores Cancer Center
Research Development Committee Co-chair, Center for Integrative Medicine
Senior Scientist, Samueli Institute

Scott M. Lippman, M.D.
Director, UCSD Moores Cancer Center
Medical Oncologist and Hematologist

Daniel Vicario, M.D., ABIHM
Medical and Integrative Oncologist
Director and Co-founder, UC San Diego Cancer Center and San Diego Cancer Research Institute

Disclosure Summary
UCSD Integrative Oncology – April 6-7, 2013

It is the policy of the University of California, San Diego School of Medicine to ensure balance, independence, objectivity and scientific rigor. All persons involved in the selection, development and presentation of content are required to disclose any real or apparent conflicts of interest. All conflicts of interest will be resolved prior to an educational activity being delivered to learners through one of the following mechanisms 1) altering the financial relationship with the commercial interest, 2) altering the individual’s control over CME content about the products or services of the commercial interest, and/or 3) validating the activity content through independent peer review. All persons are also required to disclose any discussions of off label/unapproved uses of drugs or devices. Persons who refuse or fail to disclose are disqualified from participating in the CME activity. Participants will be asked to evaluate whether the speaker’s outside interests reflect a possible bias in the planning or presentation of the activity. This information is used to plan future activities.
<table>
<thead>
<tr>
<th>Speaker Name</th>
<th>Name of Commercial Interest</th>
<th>Nature of Relevant Relationship</th>
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<tbody>
<tr>
<td>Donald Abrams, M.D.</td>
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<td>Marlene Marcello-McKenna</td>
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The CME staff, meeting planners, planning committee and CME committee reviewers do not have any relevant financial relationships to disclose.

This educational activity may contain discussion of unlabeled and/or investigational uses of agents that are not approved by the FDA. Please consult the prescribing information for each product.

The views and opinions expressed in this activity are those of the faculty and do not necessarily reflect the views of the University of California, San Diego School of Medicine.
SPEAKER BIOGRAPHICAL SKETCHES

Speakers & Event Organizers from UC San Diego Center for Integrative Medicine
(in order of appearance)

Gordon Saxe, M.D., Ph.D., M.P.H.
Research Director and Preventive Medicine Physician
Medical Director, UCSD Natural Healing & Cooking Program
UCSD Center for Integrative Medicine

Dr. Gordon Saxe is the Director of Research, a preventive and integrative medicine physician, a founding member of the UCSD Center for Integrative Medicine, and co-developer of the UCSD Natural Healing & Cooking Program. He is also the recipient of a prestigious NIH Career Development Award from the National Center for Complementary and Alternative Medicine. Dr. Saxe is a national expert in cancer and complementary and alternative medicine, and most well-known for his pioneering work in the combined use of a plant-based diet and body-mind stress reduction to control the progression of advanced prostate cancer.

Dr. Saxe’s previous studies have included: epidemiology of diet and cancers of prostate, breast, and pancreas; diet and body-mind exercise to control spread of advanced prostate cancer; and diet and gene expression in prostate cancer. His background in complementary and alternative medicine includes study of: nutritional healing: diet, vitamins/minerals, herbals, and other non-drug medicines; exercise modalities: yoga, t’ai chi, and other body-mind approaches; and eastern and western systems: Chinese medicine, Ayurveda, homeopathy, macrobiotics, and natural hygiene. Prior to coming to UCSD, Dr. Saxe was the Medical Director for the Pacific College of Oriental Medicine. He received his M.D. at Michigan State University, his Ph.D. in Epidemiology at the University of Michigan, and his M.P.H. in Nutrition at Tulane University. He completed residency training at the University of Massachusetts and is board certified in Preventive Medicine.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Lauray MacElhern  
Managing Director, Center for Integrative Medicine  
Co-founder, Natural Healing & Cooking Program  
University of California, San Diego

As Managing Director of the UC San Diego (UCSD) Center for Integrative Medicine, Lauray MacElhern oversees the business administration, strategy, operations, marketing, finance, management, and development of the Center and its four mission areas and related committees: Clinical, Education, Research, and Community Partnerships. Lauray is co-founder, teacher, and trainer of the UCSD Natural Healing & Cooking Program. She is also co-founder and elected co-chair of the Business of Integrative Medicine sub-committee of the Consortium of Academic Health Centers for Integrative Medicine (CAHCIM). Lauray joined UCSD after running a Washington, D.C.-based non-profit organization, The Cancer Project, dedicated to nutrition education and research for cancer prevention and survival. As managing director of The Cancer Project, she worked with and trained more than 100 chefs from around the world on how to teach the organization’s award-winning cooking and nutrition courses. Under her leadership, the organization reached millions through its public outreach efforts and within community centers, hospitals, and large and small medical centers in more than 160 cities across the U.S., U.K., Canada, Panama, Jamaica, India and Spain.

In the prior decade, Lauray specialized in technology, management, marketing, and leadership roles contributing to the successful start-up of three ventures—a multimedia production company, a space standards and innovations center, and a space industry association. She has achieved formal recognition from NASA and the Telly Awards for her work. From an early age, Lauray has been personally immersed in naturopathy, Ayurveda, and Chinese medicine modalities. She earned her bachelor’s degree in communication and commerce through coursework in the Wharton School and Annenberg School of Communication at the University of Pennsylvania and advanced degree coursework in nutrition sciences through extension programs at Harvard University, UC Berkeley, and American University. She is certified by the California Department of Public Health to teach Tai Chi: Moving for Better Balance. Lauray is the author of Healing Cooking, to be published in August, 2013.
Gene Kallenberg, M.D.
Director, Center for Integrative Medicine
Chief, Division of Family and Preventive Medicine (FPM)
Professor of Clinical FPM and Medicine
University of California, San Diego

Gene “Rusty” A. Kallenberg serves as UCSD School of Medicine Division Chief of Family Medicine, Vice Chair of the Department of Family and Preventive Medicine, and Director of the UCSD Center for Integrative Medicine. Dr. Kallenberg oversees all clinical programs in Family Medicine as well as research conducted by the faculty of the Division of Family Medicine and family medicine physician training programs. Dr. Kallenberg has been involved in academic medicine actively practicing and teaching medical students and residents since 1979. After serving as the director of the Harbor-UCLA Family Medicine Residency Program from 1979-1982 he moved to the George Washington University School of Medicine and Health Sciences in Washington DC, where he developed and led the Division of Family Medicine. At GWU he became very involved in the development of the new medical school curriculum, community-based apprenticeship programs and the development of service-learning experiences for students and residents. He ultimately became an Assistant Dean for Curricular Projects and served in that role for 4 years before coming to UCSD.

One of many doctors in his family, Dr. Kallenberg developed his interest in medicine early from observing his father’s approach to patient care in his general practice in Cincinnati. He has learned the importance of being sensitive to people’s needs and educating them about their health care. He has also learned that getting to know one’s patients and establishing long-term relationships with them and their families provides one of the greatest rewards of being a physician.

"I am interested in bringing together the practices of family medicine and mental health care, combining them into a more seamless, patient-friendly service that recognizes the fact that the mind is connected to the rest of the body and that problems in either area affect the other."

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Ellen Beck, M.D.
Education Director, Center for Integrative Medicine
Director of Community Education, Division of Family Medicine
Co-founder and Director, Student-Run Free Clinic Project
University of California, San Diego

As a family physician, Dr. Ellen Beck’s primary interest is teaching and practicing a "mind-body" approach to medicine by incorporating counseling, teaching and balancing Western and contemporary approaches. Dr. Beck is a Clinical Professor in the Department of Family and Preventive Medicine, the Director of Medical Student Education for the Division of Family Medicine of UCSD School of Medicine, and Education Director for the UCSD Center for Integrative Medicine. She is the Co-Founder and Director of the UCSD Student-Run Free Clinic Project, as well as Director of the national faculty development program, Addressing the Health Needs of the Underserved, and a year-long UCSD based Fellowship in Underserved Health Care. Each of these programs is based on a core philosophy that is empowering, humanistic, and transdisciplinary and sees the community as teacher.

Dr. Beck and her programs have won national and state awards including the 2011 WebMD Magazine Health Hero award, 2010 James Irvine Foundation California Leadership Award, KPBS 2010 Local Hero Diversity Award, the 2008 LEAD San Diego Visionary Award for Diversity, 2006 American Red Cross Real Heroes Award for medical hero recognition, the 2006 Blue Cross of California Community Service Award, the Norman Cousins Award for a medical education program that fosters relationship-centered care, the Society of Teachers of Family Medicine Innovation and the California Academy of Family Practice 2002 Barbara Harris Award for Educational Excellence. The Free Clinic Project was featured in a PBS documentary about integrative medicine called The New Medicine as a model of integrative care with the underserved.

Dr. Beck completed her medical training at McGill University in Montreal, Canada. After working in remote areas in northern Canada and in community geriatrics and mental health in Montreal, she joined McGill University as faculty where she was based at a local community health center and directed a clerkship in primary care and geriatrics.

She is the mother of three young adult daughters.

For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
Daniel Vicario, M.D., ABIHM
Integrative Medical Oncologist
Co-Founder and Director, San Diego Cancer Center and San Diego Research Institute

Dr. Vicario was born and raised in Northern California. At the age of seven he moved to Argentina with his family. He did his schooling in Buenos Aires. In 1983 he received his M.D. degree with honors from the University of Buenos Aires, School of Medicine. After graduating, he returned to his native California. He was a Postdoctoral Fellow in Clinical Pharmacology at Stanford University Medical Center. Then he moved to Southern California where he did his Internship, Residency and was Chief Resident in Internal Medicine at the University of California at Irvine. From 1989 to 1992 he was a Fellow in the Division of Hematology/Oncology at the University of California San Diego (UCSD). He was then appointed Assistant Clinical Professor of Medicine from 1992 to 1994 at UCSD. He has maintained a Voluntary position as Clinical Professor of Medicine at UCSD since. His research interests early on at UCSD and publications have focused on the treatment of advanced Head and Neck Cancers, Immunotherapy of Hematological Malignancies, comprehensive therapy of GU malignancies, and improving quality of life of patients with cancer.

In 1994 Dr. Vicario joined the Medical Group of North County and was co-founder, with Dr. Mark J. Adler, of the San Diego Cancer Center (SDCC), where he has been a senior partner, a Medical Oncologist and Integrative Oncologist. In February 2011, the SDCC became part of UCSD and Dr. Vicario has become full time UCSD Medical Oncologist. He remains Medical Director of the U.C. San Diego Cancer Center. His subspecialty interest is Integrative Oncology.

Dr. Vicario also co-founded the San Diego Cancer Research Institute (SDCRI) in the year 2000, a non-profit 501(c)3 organization. Dr. Vicario is a pioneer in the research and application of mind-body medicine and in Integrative Medicine. He created and directs the Integrative Oncology Program at the San Diego Cancer Center since 1998. As a physician, Dr. Vicario specializes in Medical Oncology and Integrative Oncology. Dr. Vicario has served the San Diego community in a wide variety of non-profit health care related functions since 1992, including Medical Director of two Hospices in San Diego for several years, Chairman of Cancer Committees, Professional Advisory Board and speaker for Survivorship San Diego since 1998, The Wellness Community and American Cancer Society. In 1999 Dr. Vicario was the recipient of the annual CHAD Health Hero Awards. In 2006 he received the Channel 10 News Leadership Award for the creation of the Integrative Medicine Program. In 2008 Dr. Vicario was recipient of the "Health Care Champion Award" by the San Diego Business Journal.

Dr. Vicario is Board Certified in Internal Medicine, Medical Oncology and Integrative Medicine. Over the last decade he has specialized in Integrative Oncology. He enjoys teaching medical students, medical residents, fellows, other physicians, nurses, medical staff and sharing information and knowledge with cancer patients. Dr. Vicario feels that his patients are and have always been his real and true teachers. Dr. Vicario and his wife enjoy spending time with their four children, hiking, going to the beach, and traveling.

For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
Speakers (in order of appearance)

Scott M. Lippman, M.D.
Director, UCSD Moores Cancer Center
Medical Oncologist and Hematologist

Scott M. Lippman, M.D., joined Moores Cancer Center in May 2012. He is a professor of medicine at UC San Diego and holds the Chugai Pharmaceutical Chair in Cancer. Previously, he was chair of Thoracic/Head and Neck Medical Oncology at The University of Texas (UT) MD Anderson Cancer Center. Lippman brings more than 25 years of experience as principal investigator of translational research involving investigator-initiated clinical trials. He has participated in the national leadership of clinical/translational research planning and development within the NCI Cooperative Group setting and currently sits on the National Institutes of Health (NIH) Clinical Trials/Translational Research Advisory Committee. He has served on several cancer center external advisory boards and major-trial steering committees, and has played a leadership role in major AACR and American Society of Clinical Oncology (ASCO) committees and programs.

Lippman graduated from Johns Hopkins University School of Medicine, did his internship and residency training at Johns Hopkins Hospital and Harbor-UCLA Medical Center, and had hematology/medical oncology training at Stanford University and the University of Arizona. He is triple board-certified in internal medicine, hematology and medical oncology.

In addition to extensive research and academic administrative responsibilities, Lippman maintains an active clinical practice. As a clinician, he is well-respected by his peers, with recognition in every major “Top Doctor” listing including recently in the U.S. News Top Doctors.

Author of more than 300 publications in high-impact journals, including The New England Journal of Medicine, JAMA, PNAS, and The Lancet, and chapters in major medical textbooks, Lippman has received many awards, among them the ASCO-American Cancer Society Award, AACR Cancer Research and Prevention Foundation Award, and the ASCO Statesman Award, and he is an elected member of the prestigious Association of American Physicians.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
T. Colin Campbell, Ph.D.
Jacob Gould Schurman Professor Emeritus of Nutritional Biochemistry – Cornell University

Author of "The China Study. Startling Implications for Diet, Weight Loss and Long Term Health.” (Campbell TC and Campbell, TM II, 2005)

T. Colin Campbell, who was trained at Cornell (M.S., Ph.D.) and MIT (Research Associate) in nutrition, biochemistry and toxicology, spent 10 years on the faculty of Virginia Tech's Department of Biochemistry and Nutrition before returning to the Division of Nutritional Sciences at Cornell in 1975 where he presently holds his Endowed Chair (now Emeritus).

His principal scientific interests, which began with his graduate training in the late 1950's, has been on the effects of nutritional status on long term health, particularly on the causation of cancer. He has conducted original research both in laboratory experiments and in large-scale human studies; has received over 70 grant-years of peer-reviewed research funding (mostly NIH), has served on several grant review panels of multiple funding agencies, has lectured extensively, and has authored over 300 research papers. He has served on many national and international expert committees with mandates to develop food and health policy positions. He is the recipient of several awards, both in research and in citizenship.

With his son, Thomas M Campbell II, MD, he wrote the national best-selling book, The China Study. He now has completed a second book, Whole, to be published in May, 2013.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Rowan T. Chlebowski, M.D., Ph.D.
Chief of Medical Oncology and Hematology, Harbor-UCLA Medical Center

Chair, ASCO Cancer Prevention Committee

Rowan T. Chlebowski, M.D., Ph.D. is the Chief of Medical Oncology and Hematology at the Harbor-UCLA Medical Center and conducts research at the Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center. Dr. Chlebowski has been involved in full scale clinical trials addressing issues related to breast cancer prevention and therapy and women’s health. He reported results of the Women’s Intervention Nutrition Study (WIINS), a multi-center adjuvant trial where a lifestyle intervention reduced breast cancer recurrence.

As a Women’s Health Initiative (WHI) investigator, he led reports on estrogen alone and estrogen plus progestin influence on cancer endpoints where findings have substantially changed clinical use of menopausal hormone therapy worldwide with associated reduction in breast cancer incidence.

Dr. Chlebowski has been chair of the ASCO Cancer Prevention Committee, has lead the ASCO Breast Cancer Chemoprevention Guideline and participated in the ASCO Aromatase Inhibitor Technology Assessment and the ASCO Breast Cancer Bisphosphonate and Bone Health Guideline. Dr Chlebowski’s work has been published extensively in major journals, including the New England Journal of Medicine, Journal of the American Medical Association, Lancet, Journal of National Cancer Institute, and the Journal of Clinical Oncology.
Sheila Patel, M.D.
Medical Director, Chopra Center

Dr. Sheila Patel is a board-certified family physician who earned her M.D. at the University of Wisconsin Medical School and completed her residency in family medicine at the Ventura County Medical Center in Southern California. For more than a decade, she practiced full-spectrum family medicine (from prenatal care and deliveries, to ER coverage and inpatient and outpatient primary care for all ages) in a variety of settings. She is currently Medical Director of the Chopra Center for Wellbeing in Carlsbad, California, where she offers integrative medical consultations that combine the best in conventional Western medicine with the wisdom of Ayurveda. She is also a practicing physician at an outpatient family medicine practice in San Diego County, where she is passionate about bringing holistic healing concepts into the Western medical system.

Dr. Patel’s special interests include preventive medicine and mind-body medicine, with an emphasis on Ayurveda. She finds significant value in using the tools of Ayurveda in a variety of primary care issues. She believes in a holistic, individualized approach to patient care that incorporates a wide variety of healing modalities, with the understanding that every person is unique. She is a Chopra Center–certified Ayurvedic Consultant and Primordial Sound Meditation teacher, and teaches at the Chopra Center’s 6-day and 10-day Perfect Health programs.

Dr. Patel’s medical writings on a variety of topics have been featured in several integrative and holistic publications. She is a regular contributor to the Chopra Center’s online newsletter, which reaches more than half a million subscribers throughout the world. She teaches medical students and is a Volunteer Faculty Member for the UCSD School of Medicine, where she participates in their Ambulatory Care Apprenticeship Program for first-year and second-year medical students. She also mentors students and other healthcare practitioners at the Chopra Center.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Edward Neal, M.D., L.Ac.
Director of the Xinglin Institute for Early East Asian Medical Research

Director of the International Society for the Study of Classical Acupuncture (ISSCA)

Edward Neal, M.D., L.Ac. has been trained as both a Western allopathic and Chinese medicine practitioner and had been involved in the study, practice and teaching of Chinese medicine for over 20 years.

Formerly an Associate Professor in the School of Classical Chinese Medicine at the National College of Natural Medicine in Portland, Oregon, Dr. Neal is currently the Director of the Xinglin Institute for Early East Asian Medical Research and Director of the International Society for the Study of Classical Acupuncture (ISSCA), a non-profit group dedicated to the promotion of classical medicine research and scholarship.
Leanna J. Standish, N.D., Ph.D., L.Ac., FABNO
Clinical Research Professor, Bastyr University Research Institute
Affiliate Research Professor, School of Medicine, Department of Radiology, University of Washington
Clinical Research Professor, School of Public Health, Health Services Division, University of Washington
Medical Director, Bastyr Clinical Research Center

Dr. Standish is a neuroscientist and a naturopathic physician who is board certified in naturopathic oncology. Her main research over the last 16 years has been focused on cancer, hepatitis C, and functional brain imaging in cancer patients. She has provided adjunctive naturopathic medical care to hundreds of cancer patients, and has worked collaboratively with Seattle area oncologists in providing integrated conventional/CAM care. A founding board member of the Oncology Association of Naturopathic Physicians, Dr. Standish was board certified in naturopathic oncology in 2006. Her recognition by the oncology community as an expert in naturopathic medicine is evidenced by her being voted one of Seattle’s Best Physicians in the Seattle Metropolitan Magazine in 2002, 2004 and 2008. She has been a member of both NIH and the Department of Defense study sections for scientific review of CAM research in cancer. She was appointed as a member of NCCAM’s Advisory Council 1999-2001, and appointed as an ad hoc member on NCI’s Cancer Advisory Panel for Complementary and Alternative Medicine in 1999. Dr. Standish has served as a CAM oncology advisor to MD Anderson Cancer Center.

Dr. Standish is currently co-principal investigator on two multi-million dollar NIH sponsored grants:

1 R01 1AT005873-01: Breast cancer integrative oncology: prospective matched controlled outcomes study.”

1U19AT006028-01A1: Oncomycology Translational Research Center
John E. Wagner, M.D.
Professor of Pediatrics, University of Minnesota (UM) School of Medicine
Director, UM Division of Hematology-Oncology and Blood Marrow Transplantation
Co-Director; UM Center for Translational Medicine
Hageboeck /Children’s Cancer Research Fund Endowed Chair
UM McKnight Presidential Chair

Dr. John Wagner is Professor of Pediatrics; Director of the Division of Blood and Marrow Transplantation; Scientific Director of Clinical Research/Stem Cell Institute, and Co-Director of the Center for Translational Medicine at the University of Minnesota. M.D. degree received at Jefferson Medical College, internship and residency in Pediatrics at Duke University School of Medicine, and postdoctoral fellowship in Hematology-Oncology at the Johns Hopkins School of Medicine. Dr. Wagner is internationally recognized as an expert in stem cells and umbilical cord blood transplantation.

Dr. Wagner’s research has focused on the development of new treatment approaches for life-threatening diseases for which conventional treatments are unsatisfactory. Most of his work is in the setting of leukemia and bone marrow transplantation, but also includes skin diseases, cardiovascular diseases, diabetes, and neurological diseases.

Dr. Wagner serves on numerous national/international scientific advisory committees, has made significant contributions as a scientist/clinician member of the CIRM’s Standards Working Group, as a committee member for the Institute of Medicine’s ‘Establishing a National Cord Blood Stem Cell Banking Program’ and as a member of the National Academies of Science ‘Human Embryonic Stem Cell Research Advisory Committee.’
Donald Abrams, M.D.
Integrative Medical Oncologist
Director, Integrative Oncology Research Program, UCSF Osher Center
Chief of Hematology-Oncology, San Francisco General Hospital
Co-editor, Integrative Oncology

Donald I. Abrams, M.D. is chief of the Hematology-Oncology Division at San Francisco General Hospital, an integrative oncologist at the UCSF Osher Center for Integrative Medicine and Professor of Clinical Medicine at the University of California San Francisco. He graduated from Brown University in 1972 and from the Stanford University School of Medicine in 1977.

After completing an Internal Medicine residency at the Kaiser Foundation Hospital in San Francisco, he became a fellow in Hematology-Oncology at the UCSF Cancer Research Institute in 1980. During his fellowship, Dr. Abrams spent eight months working in the retrovirology laboratory of Harold Varmus, M.D. during the time that the first cases of AIDS were being diagnosed. He subsequently returned to the clinical arena where he was one of the original clinician/investigators to recognize many of the early AIDS-related conditions. He conducted numerous clinical trials investigating conventional as well as complementary therapies in patients with HIV including therapeutic touch, Traditional Chinese Medicine interventions, medicinal mushrooms, medical marijuana and distant healing. His interest in botanical therapies led him to pursue a two-year Fellowship in the Program in Integrative Medicine at the University of Arizona which he completed in December 2004. His particular passion in the field involves nutrition and cancer. Since completing his Fellowship, Dr. Abrams has been providing Integrative Medicine consultation to people living with and beyond cancer at the UCSF Osher Center for Integrative Medicine. His integrative oncology research interests are in medicinal mushrooms, Traditional Chinese Medicine interventions and nutrition. He co-edited the Oxford University Press textbook Integrative Oncology with Andrew Weil, M.D. He is a member of the NCI PDQ CAM Editorial Board. Dr. Abrams was President of the Society for Integrative Oncology in 2010.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Shamini Jain, Ph.D.

Dr. Shamini Jain is a Senior Scientist and Program Manager in the Brain, Mind, and Healing Center (BMH) of the Samue\li Institute, and Assistant Professor in the Department of Psychiatry at the University of California San Diego (UCSD). Dr. Jain engages in and oversees clinical research in the areas of biofield, mind-body, and whole-systems approaches for healing. Her current extramurally-funded research includes a prospective outcomes trial to examine the impact of a comprehensive cancer clinic (InspireHealth) on quality of life and survival in late stage cancer patients, the examination of the impact of gratitude on psychoneuroendocrine functioning in pre-symptomatic heart failure patients, and the development and testing of systems biology-based models for understanding and tracking resilience.

At UC San Diego, Dr. Jain teaches and mentors students in the areas of complementary medicine research and psychoneuroimmunology. She also serves as Chair of UCSD’s Center for Integrative Medicine’s Research Development Committee.

Dr. Jain has authored numerous peer-reviewed publications in integrative medicine and psychoneuroimmunology, and she has received several awards from scientific organizations for her work. She obtained her B.A. in Neuroscience and Behavior from Columbia University, and her Ph.D. degree from the SDSU/UCSD Joint Doctoral Program in Clinical Psychology, with a specialization in Psychoneuroimmunology. She conducted her clinical residency at the La Jolla VA Hospital/UCSD, and her post-doctoral fellowship at UCLA’s Division of Cancer Prevention and Control Research. Dr. Jain is an active member of several professional societies, including the American Psychosomatic Society, Psychoneuroimmunology Research Society, and the Society for Integrative Oncology.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Ruth Westreich

The Westreich Foundation, of which Ruth is the president, is having a deep and wide impact in the nonprofit community. The focus of the private foundation is Optimum Health and Wellness; and Education and Literacy. In the areas of wellness and prevention, The Westreich Foundation generously supports integrative, palliative, functional and natural medicine nationally and locally. She was recently recruited to join the Board of Directors of the prestigious Samueli Institute in Alexandria, VA. Principally a research/think tank, they are expanding their mission to include the education and translation of this vast global research in health and wellness.

She is a member of the Board of Trustees of Bastyr University in Seattle and a member of Bastyr University San Diego’s President’s Council of Advisors.

She is the interim board chair of the Board of Advisors for the UCSD Center for Integrative Medicine. She believes that UCSD CIM is poised to play a key role in the delivery of integrative medicine and healthy lifestyle in San Diego.

She is also a member of the Board of Advisors of The Academic Consortium for Complementary and Alternative Health Care (ACCAHC). This group represents almost 500,000 credentialed and licensed practitioners whose principal role is to be part of the team that supports whole person health and healing.

She also supports the work of Dr. Mimi Guarneri, one of the nation’s leading Cardiologists in Integrative Medicine.

She is also passionately working to bring the creative and expressive arts to the health care arena as healing modalities in restoring wellness and wholeness, even cure is no longer possible. Her vision, in conjunction with countless others, is to be able to use forms of visual and auditory art therapies as a modality in healing the body and mind, and adding comfort to the death and dying process for patients and their families.

Ruth is passionately helping to strengthen the entire nonprofit sector by being instrumental in the development of the University of San Diego’s Institute for Nonprofit Education and Research. She is working tirelessly to be a vital force in strengthening the entire nonprofit and philanthropy sector by helping to establish best practices for nonprofits, educate and train Board of Director’s in board governance, and making clear the differences and obstacles between larger nonprofits and those all-volunteer nonprofits that are so vital to the economy of our globe.

Ruth Westreich also has more than thirty years of experience as a Creative Marketing Communications Director and Strategic Marketing Director in both the corporate and nonprofit sectors. She is also the visionary responsible for the creation of the highly acclaimed new business book, The Art of Original Thinking - The Making of a Thought Leader written by award winning author, Jan Phillips, which just won the Editor's Choice Award from Allbooks Review and was nominated for the Best Books Award by USABookNews.com. She also was the underwriter of the best seller on Amazon, The Gluten Nation by Jackie Townsend Konstanturos. Gluten Nation is a thorough look into the hidden role that gluten and gluten intolerance plays in the lives of millions and how taking simple, safe steps of instituting a gluten free diet can have a remarkable impact on the quality of life for millions of men, women and children around the globe.

For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
Joseph V. Raffa, Ed.D.

Dr. Joe Raffa has served as cancer program manager, consultant, and advocate for 25 years. Affiliations include: Director the San Diego/Imperial Counties Office of Cancer Control (SANDIOCC), Consultant to the University of California San Francisco Cancer Research Institute on the system model design for California mandatory reporting, and Director of the San Diego County Cancer Navigator which provided information and support to thousands of patients and families. His doctoral dissertation in 1997 explored the organizational culture dynamics of cancer prevention, specifically the breast cancer activist movement in the 1990s. He earned a doctorate in Education from the University of San Diego, and a Master of Science in Management from the Polytechnic Institute of New York.

In 1984, his wife was diagnosed with breast cancer. At the time Dr. Raffa was a project manager directing a global performance and failure analysis system for the US NAVY. The RAPID FEEDBACK SYSTEM as it was called was successful at discovering the causal factors in strategic weapon system failures. He became intrigued with the potential analogy between the database system he had designed for the US NAVY and a database system that would help patients make decisions regarding breast cancer treatment. His vision was a national cancer resource that would provide the data for integrated research and decision support. The vision was partially realized in 1996 with the development of the National Cancer Data Base (NCDB) by the College of Surgeons with support from the American Cancer Society.

His co-keynote address with Dr. Cedric Garland on cancer data sharing at the Venice conference on Preventive Strategies in Medicine in 1988 led to a 20-year collaboration with Italian researchers. Based on the success of this conference and other projects, he was honored in 1994 with the distinction of “Cavaliere Ufficiale” (Knighthood) from the Republic of Italy for his collaborative leadership and contributions to advancing research. Other distinction includes the ARCOM (Army Commendation Medal) for his tour of duty as Captain US ARMY with US Army School Europe where he developed and conducted computer science and management training.

For supplemental resources and recordings from the event, visit [http://cim.ucsd.edu](http://cim.ucsd.edu).
Documented “Miraculous” Cancer Remission Case Studies

(Speakers are listed in order of appearance)

Norman Arnold

Norman Arnold is a businessman and philanthropist in Columbia, South Carolina who experienced a remission of metastatic adenocarcinoma of the pancreas 31 years ago after adopting a specialized whole food, plant-based diet along with other healthy lifestyle changes. His case was documented in 2002 by an expert panel of oncologists at the National Cancer Institute. He went on to endow and help launch the Univ. of South Carolina’s Arnold School of Public Health.

Marlene Marcello-McKenna

Marlene Marcello-McKenna was first diagnosed with melanoma at the young age of 37 years old. A wife and mother of four children with a successful career, Marlene was forced to re-evaluate every aspect of her life. She was told she would have to make a dramatic change - from her diet to her attitude - if she wanted to overcome a disease that takes the lives of thousands of people every year.

Author of When Hope Never Dies, Marlene shares her intimate story of her remarkable road back to health and happiness. Now more than 25 years cancer-free, she tells us how she did it and offers a complete program for wellness - for the mind, body and spirit. She also reveals another miracle that fully renewed her faith in the power of mind-body healing.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
Bhava Ram

Bhava Ram is a former NBC News war correspondent who worked throughout the world, including the Gulf War, Afghanistan, Africa, South America and Asia. A broken back and failed surgery ended his career. Then came a diagnosis of stage four cancer. He ultimately healed himself through the sciences of Yoga and Ayurveda.

He is now a Vedic Therapist, author and teacher. Bhava is a graduate of the Kerala Ayurveda Academy and certified as an Advanced Yoga & Ayurveda Educator through the American Institute of Vedic Studies (AIVS). He is registered with the Yoga Alliance at the highest EYT-500 level and leads retreats, workshops and trainings in America and India.

Bhava is the author of three books: The 8 Limbs of Yoga, Pathway to Liberation, Deep Yoga, Ancient Wisdom for Modern Times, and the memoir Warrior Pose, How Yoga Literally Saved My Life (release date: May, 2013). He now devotes his life to sharing the miracle of self-healing with others, believing fully that we all have the inherent power to take charge of our destiny, heal ourselves and effect lasting personal transformation in our lives. For further details see www.deepyoga.com and www.bhavaram.com.

Glenn Sabin

Glenn Sabin is a 22-year cancer “thriver” who created a comprehensive, integrative oncology approach to achieve a complete pathological remission of his CLL (chronic lymphocytic leukemia)—considered an “incurable” disease—without conventional intervention. Glenn’s case has been chronicled through Dana-Farber Cancer Institute and his personal oncologist, Lee M. Nadler, MD, Dean of Clinical and Translational Medicine at Harvard Medical School.

A staunch proponent and leader in the area of integrative medicine, Glenn is a board member of the Society for Integrative Oncology and has a special interest in evidence-based integrative cancer care and the scientific exploration of whole systems protocols through well-designed clinical studies implemented in academic settings.

After a 25-year career running a media and content marketing company, Glenn sold his firm in 2009 to explore new media opportunities. Born out of his personal journey with cancer, Glenn also launched FON Therapeutics. He devotes energy to advancing medical research models, helping integrative medicine providers grow their practices and to patient coaching. Glenn has a uniquely relevant perspective on the business, policy and scientific matters specific to integrative healthcare and lectures on these topics across the country.

For supplemental resources and recordings from the event, visit http://cim.ucsd.edu.
We would like to thank Metagenics for their educational grant support. Their financial support contributed to making this conference possible.

We would also like to thank the following companies and organizations for their contributions to this conference and the UCSD Center for Integrative Medicine:

Bastyr University, California
Casa de Luz
Chopra Center
Goldmine Natural Foods
Home Naturals
Nana’s Cookies
Pacific College of Oriental Medicine
San Diego Oncology Massage and Energy Healing
An NIH-Sponsored Nutrition Journey Into Medicine?

T. Colin Campbell, PhD
Jacob Gould Schurman Professor Emeritus of Nutritional Biochemistry
Cornell University, Ithaca, NY

Farm To School
Promoting Animal Protein?

1948-1954
1958-1962

Promoting Protein Consumption

"Mothercraft" Centers, 1965-75
Promoting Protein Consumption

Increasing Protein Increasing Cancer?

<table>
<thead>
<tr>
<th>Animals with tumors and hyperplastic nodules</th>
<th>Dietary Protein (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20% (regular)</td>
<td>30/30 (100%)</td>
</tr>
<tr>
<td>5% (low)</td>
<td>0/12 (0%)</td>
</tr>
</tbody>
</table>

Madhavan and Gopalan, 1968.
Confirmed by Wells et al., 1974.

Dietary Protein and EARLY Cancer

Dietary Protein and EARLY Cancer

Lesson #1: nutrition controls cancer growth
More Cancer Genes → More tumors
Less Cancer Genes → Less tumors

Genetics or Nutrition?
(Early 1980s)

More Cancer Genes → More tumors
Less Cancer Genes → Less tumors

Genetics or Nutrition?
(Early 1980s)

Lesson #2: Nutrition controls genes

More Cancer Genes → More tumors
Less Cancer Genes → Less tumors

Nutrition → Causes Cancer

Lesson #3: Nutrition acts not by one but by countless mechanisms, as in a symphony

INITIATION (genes, chem carcinogens)

Lesson #3: Nutrients act not by one but by countless mechanisms, as in a symphony

PROMOTION (nutrient imbalances)
Decreased NK cell activity and increased cell replication, oxidant activity, IGF-2, altered energy activity

Experimental Protein is CASEIN
(Main Protein of Cow's Milk)

Soy & wheat protein did not increase pre-cancer development, even at 20% of diet calories

Lesson #4: Casein is the most relevant carcinogen ever identified

Experimental Protein is CASEIN
(Main Protein of Cow's Milk)

Soy & wheat protein did not increase pre-cancer development, even at 20% of diet calories

Lesson #5: Nutrients of animal-based foods function differently from nutrients of plant-based foods

Dietary Protein and EARLY Cancer
(Dunaif and Campbell, J. Nutr. 1987)

Traditional Human Consumption

Dietary Protein and EARLY Cancer
(Dunaif and Campbell, J. Nutr. 1987)

Cancer Index

% Dietary Protein

4 8 12 16 20

0.6

0.4

0.2

0.0

Traditional Human Consumption
**Dietary Protein and EARLY Cancer**

(Dunaif and Campbell, J. Nutr. 1987)

A threshold distinguishes different properties

**Dietary Protein and General Health**

**Dietary Protein and General Health**

Plant Based Foods | Animal Based Foods
---|---
Adverse Health Effects

4 | 8 | 12 | 16 | 20

**Dietary Protein and General Health**

**Dietary Protein and General Health**

Plant Based Foods | Animal Based Foods
---|---
Adverse Health Effects

4 | 8 | 12 | 16 | 20

**Nutrient Compositions**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>PLANT</th>
<th>ANIMAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antioxidants</td>
<td>Only Made By Plants</td>
<td>Almost None</td>
</tr>
<tr>
<td>Complex Carbs</td>
<td>Only Made By Plants</td>
<td>None</td>
</tr>
<tr>
<td>Vitamins</td>
<td>Only Made By Plants</td>
<td>Almost None</td>
</tr>
<tr>
<td>Fat</td>
<td>~9-11%</td>
<td>~15-20%</td>
</tr>
<tr>
<td>Protein</td>
<td>~9-11%</td>
<td>~15-20%</td>
</tr>
</tbody>
</table>

*PROCESSED FOODS are varied, likely worse*

**Pursuing A Larger Context**

What about other nutrients, other diseases?

How important are nutrient-nutrient interactions?
Breast Cancer in 2,400 Chinese Counties, 1973-1975

Cancers are geographically clustered
367 variables, 100,000 correlations
Investigation of patterns, NOT individual correlations

Observations On Patterns
(50+ exposure-outcome comparisons)

Within ‘explanatory’ models*, statistically significant majority of correlations favored less disease for nutrient composition of plant-based foods

(* Examples: breast cancer, liver cancer, energy utilization, ‘Western’ diseases, etc.)

Observations
(50+ exposure-outcome comparisons)

Consuming WHOLE, PLANT-BASED foods (less total protein and fat, no animal protein) means less chronic degenerative diseases
Consistent with animal studies

Whole Food, Plant-Based Diet Prevents, Suspends and/or Cures All
(Peer-reviewed research findings)

- Cancers
- Heart Diseases
- Multiple Sclerosis
- Kidney Stones
- Osteoporosis
- Diabetes (I and II)
- Rheumatoid Arthritis
- Obesity
- Erectile Dysfunction*
- Macular Degeneration
- Hypertension
- Acne
- Migraine
- Lupus
- Depression
- Alzheimer’s Disease
- Cognitive Dysfunction
- Pain*

Lesson #6: WFPB nutritional effect is broad

Esselstyn’s 23-Year Study of 18 Seriously Ill Heart Patients

- All plant-based diet, low dose statins
- 49 coronary events during 8 years prior to study
- 0 coronary events during 12 yrs of follow-up in 17/18 patients. No coronary morality after 26 years.

Recent Esselstyn Findings

Number of patients: 196 ‘heart patients’
Disease diagnosis: Confirmed at baseline
Counseling: One 5 hr session (groups of 5-12)
Retrospective recall: 2-7 yr later
Recent Esselstyn Findings

compliant/non-compliant: 177/19  
Compliance: 89.3%  
Cardiovascular events: compliant (0.4%) vs. non-compliant (67%)  
All subjects remained under care of personal physician (statin use allowed)

Treating Illness Using Whole Food Plant Based Diet

Lesson #7: Nutrition Therapy  
>> Drug Therapy  
① Broad (most diseases prevented, suspended and/or cured)  
② Quick acting (days to weeks)  
③ Vital (deaths are spared)  
④ No known side effects (cf. drugs)

Nutrition and Medical Practice

Not until nutrition is recognized (w)holistically can its true value be appreciated

A New Worldview of Food and Health?

On-Line Plant-Based Nutrition, with eCornell, Inc.

www.tcolincampbell.org
Interactive Learning Experience  
30 Category I CME/CEU credits  
Instructor-monitored discussion
Dietary Influence on Incidence and Recurrence of Breast Cancer and other Cancers

April 6, 2013
Rowan Chlebowski MD, PhD
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Outline
Breast Cancer Incidence and Outcome
- Dietary fat intake
- Dietary pattern
- Vitamin/supplement use
- Physical activity
- Summary

Fat and Breast Cancer Hypothesis
Dietary Assessment and Measurement Error

In cohort of 13,070 women
7-day food diary: statistically significant positive association (RR 1st vs 5th quartile=1.79) p-trend = 0.05

Food frequency questionnaire: no significant association (RR 1st vs 5th quartile=1.21) p-trend 0.52
Consensus: real but modest association

Country-by-Country Breast Cancer Death Rate by Estimated Dietary Fat Intake

Women’s Health Initiative
WHI Dietary Modification Trial

373,092 completed the eligibility screening form
56,139 eligible
48,835 randomized

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27 vs 53, HR 0.77 (0.48-1.22), P=0.07

% energy from fat (local) HR (95% CI)
< 27.9 0.97 (0.79, 1.20)
27.9 ≤ 32.3 1.08 (0.89, 1.30)
32.3 ≤ 36.8 0.85 (0.70, 1.03)
≥ 36.8 0.78 (0.64, 0.95)

Interaction p-value = 0.04

Lower breast cancer incidence with higher entry fat intake

Carrol et al. Can Med Assoc J 1986;96(12):590-4
Canadian Diet and Breast Cancer Prevention Study
Dietary and Clinical Outcomes

- Women 30-65 yrs old
- Without breast cancer but mammographic density ≥ 50%
- Excluded BMI > 27
- Dietary intervention (n=2341) to reduce fat to 15% of calories and increase carbs
- % calories from fat 10% lower on intervention
- Body weight (1 yr) 1.6 kg lower on intervention

Breast Cancer Incidence

HR=1.19 (95% CI 0.91-1.55)


WINS: Change in BMI and Weight by Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Diet Minus Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI (kg/m²)</td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>-1.1</td>
</tr>
<tr>
<td>Year 3</td>
<td>(-1.3 to -0.9)</td>
</tr>
<tr>
<td>Year 5</td>
<td>(-1.9 to -0.4)</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>-6.0</td>
</tr>
<tr>
<td>Year 3</td>
<td>(-6.9 to -5.5)</td>
</tr>
<tr>
<td>Year 5</td>
<td>(-9.9 to -1.9)</td>
</tr>
</tbody>
</table>

All values, P<.005 versus control
BMI = Body Mass Index

All values for weight, P<.005, intervention versus control Information on weight and BMI was available for all 2341 and 1462 women in the dietary intervention group and the control group, respectively, at baseline; for 854 and 1310 at year 1; 698 and 1044 at year 3; and 386 and 998 at year 5.

WINS: Percent Calories from Fat

Dietary Fat Intake and Breast Cancer Recurrence
Women’s Intervention Nutrition Study (WINS)

- Women 48-79 yrs
- Early breast cancer
- Surgery +/- RTx
- Systemic therapy*
- Dietary fat intake ≥20% of calories

Control (n=1462)

Median follow-up 60 months

Dietary Intervention (n=975) to reduce fat intake maintaining nutritional adequacy

* Tamoxifen required, chemoRx optional for ER+; chemoRx required for ER-.


WHEL Study
(Women’s Healthy Eating and Living)

- age 27-74 (two-thirds < 55 yo)

Result: No effect on disease-free survival with substantial increase in fruit and vegetable intake

WHEL Study
(RCT)

- diet intervention - 5 vegetable servings
- 16 oz vegetable juice
- 3 fruit servings
- 30 gm fiber
- 15-20% calories fat

Primary Outcome: - breast cancer events, death

Dietary Intake and Body Weight Change During WINS and WHEL Intervention

<table>
<thead>
<tr>
<th></th>
<th>WHEL</th>
<th>WINS</th>
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</thead>
<tbody>
<tr>
<td>% Energy from fat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>28.5 ± 0.16</td>
<td>29.6 ± 7.1</td>
</tr>
<tr>
<td>1 Yr</td>
<td>22.7 ± 0.20</td>
<td>20.3 ± 7.8</td>
</tr>
<tr>
<td>4 Yrs</td>
<td>27.1 ± 0.24</td>
<td>22.6 ± 8.5</td>
</tr>
<tr>
<td>6 Yrs</td>
<td>28.9 ± 0.25</td>
<td>23.0 ± 9.2</td>
</tr>
<tr>
<td>Body Weight (kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>73.5 ± 0.42</td>
<td>72.7 ± 15.9</td>
</tr>
<tr>
<td>1 Yr</td>
<td>73.0 ± 0.45</td>
<td>70.6 ± 15.2</td>
</tr>
<tr>
<td>4 Yrs</td>
<td>74.2 ± 0.51</td>
<td>71.2 ± 14.9</td>
</tr>
<tr>
<td>6 Yrs</td>
<td>74.1 ± 0.54</td>
<td>69.4 ± 13.9</td>
</tr>
</tbody>
</table>

WINS values, all mean ± SD. WHEL values, all mean ± SE
Significantly different from baseline, p<0.005


Definitions
Dietary Patterns and Breast Cancer Risk

- Western/unhealthy dietary pattern: high red and/or processed meats, refined grains, potatoes, sweets and high-fat dairy
- Prudent/healthy dietary pattern: high fruit, vegetable, poultry, fish, low-fat dairy, and whole grains
- Mediterranean: prudent/healthy dietary pattern with olive oil emphasis

Cade et al. Europe J Clin Nutr 2011;65:920-928

Adherence to Mediterranean Diet and Breast Cancer in the EPIC Cohort

- 335,062 women from 10 European countries
- Adapted relative Mediterranean Diet (ar MED) score
- Adjusted Cox proportional hazards regression models
- High arMED score associated with lower breast cancer risk
  - All HR 0.94, 95% CI 0.88-1.00, P=0.048
  - ER-, PR- HR 0.80, 95% CI 0.65-0.99, P=0.043

Buckland et al. Int J Cancer 2012 Nov 26 (Epub)

Mediterranean Diet (ar MED score) and Postmenopausal Breast Cancer Survival

- 2729 postmenopausal women with Stage I-III breast cancer in the Nurses Health Study
- Diet assessed 1 year after diagnosis
- 302 deaths breast cancer related 270 deaths not related
- In women with low physical activity (< 9 METs/wk) higher arMED associated with lower non-breast cancer related deaths (RR 0.39, 95% CI 0.22-0.75, P [trend]=0.004)

Kim et al. Nutr Cancer 2011;63:381-388
Multivitamin Use and Cancer in the Women's Health Initiative Cohort

<table>
<thead>
<tr>
<th>Event</th>
<th>Multivitamin Users</th>
<th>Persistent Multivitamin Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive breast cancer</td>
<td>0.98 (0.91-1.05)</td>
<td>1.00 (0.92-1.09)</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>0.99 (0.88-1.11)</td>
<td>1.09 (0.88-1.36)</td>
</tr>
<tr>
<td>Endometrial cancer</td>
<td>1.05 (0.90-1.21)</td>
<td>1.11 (0.91-1.34)</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>1.00 (0.88-1.13)</td>
<td>1.11 (0.95-1.31)</td>
</tr>
</tbody>
</table>

* Persistent users are defined as participants who were using any multivitamins at baseline and at their first collection of any multivitamin information during follow-up (year 1 for the CTs and year 3 for the OS).

Vitamin D and Breast Cancer Incidence

- Selected observational studies associate higher vitamin D intake and 25-hydroxyvitamin D levels \(^2-^4\) with higher breast cancer risk.
- Some recommend monitoring 25-hydroxyvitamin D levels and vitamin D supplementation to reduce breast cancer risk.
- However, the data have been mixed \(^5-^8\).
- No randomized trial had been conducted.

Vitamin Supplement Use During Breast Cancer Treatment and Survival in a Prospective Cohort

- Age 20-75 years.
- Interviewed about 6 months post diagnosed.
- 4.1 years follow-up.
- Shanghai, China.
- Antioxidant (vitamin E, vitamin C, multivitamin) users had lower mortality risk (HR 0.82, 95% CI 0.65-1.02) and lower recurrence risk (HR 0.78, 95% CI 0.63-0.95).

WHI Calcium and Vitamin D Supplement Trial

- 68,132 WHI CT Participants
- 31,850 Ineligible or Not Interested
- 36,282 Randomized
- 36,282 Randomized
- CaD supplement
  - 1000 mg elemental calcium as calcium carbonate
  - 400 IU vitamin D
  - Divided dose; with meals
  - Mean follow-up 7.0 years

Relation Between Placebo Adherence (< 80% vs > 80%) and Clinical Events in the WHI Menopausal Hormone Therapy Trials

<table>
<thead>
<tr>
<th>Event</th>
<th>Events</th>
<th>Adjusted HR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death (all cause)</td>
<td>464</td>
<td>0.64 (0.51-0.80)</td>
</tr>
<tr>
<td>Hip fracture</td>
<td>127</td>
<td>0.50 (0.33-0.78)</td>
</tr>
<tr>
<td>Clinical MI</td>
<td>241</td>
<td>0.69 (0.50-0.95)</td>
</tr>
<tr>
<td>Invasive breast cancer</td>
<td>265</td>
<td>0.73 (0.53-1.00)</td>
</tr>
<tr>
<td>Cancer death</td>
<td>215</td>
<td>0.60 (0.43-0.82)</td>
</tr>
</tbody>
</table>

Women who adhered to placebo use had substantially more favorable clinical outcomes compared to non-adherence which was not explained by potential confounders.
Only 20% of the difference between individual 25(OH) D levels explained by sunlight exposure or vitamin D intake (diet and supplement).

25-Hydroxyvitamin D and Breast Cancer Recurrence

<table>
<thead>
<tr>
<th>Lead Author</th>
<th>n</th>
<th>Category</th>
<th>Country</th>
<th>Follow-up (mean)</th>
<th>Study Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goodwin</td>
<td>512</td>
<td>Early breast cancer, resected</td>
<td>Canada</td>
<td>11.8 yrs</td>
<td>Significant association</td>
</tr>
<tr>
<td>Pihl</td>
<td>687</td>
<td>Early breast cancer, resected</td>
<td>Canada</td>
<td>7.9 yrs</td>
<td>No significant association</td>
</tr>
<tr>
<td>Jacobs</td>
<td>1024</td>
<td>Early breast cancer, resected</td>
<td>USA</td>
<td>7.3 yrs</td>
<td>No significant association</td>
</tr>
<tr>
<td>Wisting</td>
<td>1294</td>
<td>Stage I-IV cohort</td>
<td>Germany</td>
<td>5.8 yrs</td>
<td>Significant association</td>
</tr>
<tr>
<td>Treil</td>
<td>251</td>
<td>Stage I-IV</td>
<td>Norway</td>
<td>NA</td>
<td>Significant association</td>
</tr>
<tr>
<td>Coleman</td>
<td>872</td>
<td>Early stage, resected</td>
<td></td>
<td>4.4 yrs</td>
<td>Significant association</td>
</tr>
</tbody>
</table>

Note: higher physical activity and lower BMI associated with both higher 25(OH)D and lower breast cancer

Meta-Analysis: Physical Activity and Breast Cancer Incidence in Postmenopausal Women

- Physical activity:
  - Postmenopausal – OR 0.75 (95% CI 0.70-0.80)
  - Premenopausal – OR 0.80 (95% CI 0.73-0.87)
- Intensity
  - Low – OR 0.82 (95% CI 0.76-0.90)
  - High – OR 0.78 (95% CI 0.71-0.86)
- Weight Loss: OR 0.81 (95% CI 0.67-0.97)

Physical Activity and Survival After Breast Cancer

Nurses’ Health Study, 2987 Breast Cancer Stage I-III

Self-report physical activity prior to diagnosis (retrospective) and ≥ 2 years (38 months median) after breast cancer diagnosis

Multivariate RR (RF, protein, stage, treatment)

<table>
<thead>
<tr>
<th>Physical Activity Post Diagnosis (MET – hours/week)</th>
<th>Total Deaths</th>
<th>Breast Cancer Death</th>
<th>Recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Deaths</td>
<td>1.0</td>
<td>0.80</td>
<td>1.0</td>
</tr>
<tr>
<td>&lt;3</td>
<td>0.71</td>
<td>0.59</td>
<td>0.80</td>
</tr>
<tr>
<td>&gt;3-8.9</td>
<td>0.59</td>
<td>0.40-0.85</td>
<td>0.59</td>
</tr>
<tr>
<td>&gt;8.9-14.9</td>
<td>0.56</td>
<td>0.56</td>
<td>0.60</td>
</tr>
<tr>
<td>&gt;14.9-23.9</td>
<td>0.66</td>
<td>0.66</td>
<td>0.60</td>
</tr>
<tr>
<td>&gt;23.9</td>
<td>0.74</td>
<td>0.66</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Physical activity over 9 MET-hours/week (walking 3 hours/week) associated with reduced risk of recurrence and death

Holmes MD et al. JAMA 2005;293:2479-2492

Based on Observational Findings Physical Activity is the Lifestyle Factor Most Strongly And Consistently Associated With Both Breast Cancer Incidence And Breast Cancer Recurrence

Breast Cancer Outcome and Change in Physical Activity From Before to After Breast Cancer Diagnosis in WHI Cohort

<table>
<thead>
<tr>
<th>Total N (n=2776)</th>
<th>No change/inactive (n=958)</th>
<th>Increase/active (n=1121)</th>
<th>Decrease/inactive (n=697)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths</td>
<td>N=46</td>
<td>N=69</td>
<td>N=53</td>
</tr>
<tr>
<td>Age-adjusted HR</td>
<td>1.00</td>
<td>0.59 (0.40-0.85)</td>
<td>1.01 (0.71-1.45)</td>
</tr>
<tr>
<td>Multivariate</td>
<td>1.00</td>
<td>0.67 (0.46-0.96)</td>
<td>1.06 (0.73-1.54)</td>
</tr>
</tbody>
</table>

HR=hazard ratio
Adjusted for age, stage, ER, PR, grade HER2, ethnicity, WHI study arm, previous hormone therapy use, time from diagnosis to physical activity assessment, BMI, diabetes, alcohol, smoke, total calories and percentage calories from fat, and servings of fruit and vegetables.

**DIANA 1 and DIANA 2 (Diet and ANdrogens) Randomized Feasibility Trials**

- In healthy postmenopausal women (DIANA-1) and in breast cancer patients (DIANA-2)
- Diet based on traditional Mediterranean and macrobiotic recipes
- Intervention group had significantly decreased
  - Body weight
  - Serum testosterone (18%)
  - Bioavailable estrogen and IGF-1

**Relation of BMI and Physical Activity (PA) to Sex Hormones in Postmenopausal Women**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Esterone (mean)</th>
<th>(pg/mL) 95% CI</th>
</tr>
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<tbody>
<tr>
<td>Low BMI, Hi PA*</td>
<td>79</td>
<td>18.4</td>
<td>16.5-20.4</td>
</tr>
<tr>
<td>Low BMI, Low PA</td>
<td>55</td>
<td>19.9</td>
<td>17.3-22.8</td>
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<td>47</td>
<td>24.1</td>
<td>20.5-28.2</td>
</tr>
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<td>86</td>
<td>28.8</td>
<td>25.6-32.3</td>
</tr>
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*Low BMI (<29.0); HI BMI (> 29.0); Lo PA (<6.5 Met – h/wk); HI PA (> 65)

Similar trends for estradiol, free estradiol and inverse for SHBC

**Feasibility Trials**

- **WINS II – UK Early stage breast cancer postmenopausal pts, estrogen receptor negative standard Rx with or without lifestyle intervention. Substantive fat intake reduction achieved.**
- **LISA: NCIC, Canada and USA (n=328) early stage breast cancer postmenopausal pts, letrozole with or without lifestyle intervention (weight loss and increased physical activity achieved via central intervention)**

Planning for full scale, multi-center intervention trial in US based on LISA results

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Lifestyle and Adjuvant Breast Cancer Randomized Clinical Trials

The German SUCCESS C Study - Lifestyle Study on Breast Cancer

Sample size: about 1000 patients


Lifestyle and Breast Cancer Recurrence: The DIANA-5 (Diet and Androgens) Trial

- Age 30-70 at recruitment
- Primary, invasive breast cancer within 5 yrs
- No recurrent disease
- High risk for recurrence by:
  - ER negative
  - Testosterone \( \geq 0.4 \) ng/ml
  - Insulin \( \geq 50 \) pmol/L
  - Metabolic syndrome


Conclusions

- Given available information, it is unclear whether any specific dietary component or pattern can influence breast cancer outcome if weight is optimal and moderate physical activity maintained.
- Evidence for a potentially important role for weight loss/maintenance (reviewed elsewhere) and moderate intensity physical activity in impacting breast cancer outcome is strong and compelling.
- Perhaps results from ongoing and planned randomized trials will lead to greater incorporation of lifestyle interventions in routine clinical practice.

Breast Cancer Mortality Doubled in Korea and Japan from 1970 Levels

Changes occurred about 10 years after the inception of nutrition transition due to rapid economic growth


Conclusions

- In the era of targeted therapy, lifestyle factors have demonstrated influence on pathways associated with breast cancer incidence and recurrence
- Lifestyle change can be achieved at relatively low cost with certainly mediated interventions and with minimal side effects
- Increasing research attention to this area is warranted
MIND-BODY THERAPIES IN CANCER

Sheila Patel, MD
Medical Director
Chopra Center for Wellbeing

From the National Institute of Health-National Center for Complementary & Alternative Medicine

MIND-BODY MEDICINE

Mind-body medicine focuses on the interactions among the brain, mind, body and behavior, and on the powerful ways in which emotional, mental, social, spiritual, and behavioral factors can directly affect health

“Thoughts are signals telling your body, mind, and environment to move in a certain direction.
It’s not just the thoughts we have, but what we do with the thoughts.”

“How do thoughts effect cancer?"

- What causes cancer?
- Risk factors
  - Can be changed: lifestyle choices
    - Tobacco, Alcohol
    - Infections
    - What you eat
    - Sun exposure
    - Other environmental exposures
    - UNMANAGED STRESS
  - Can’t be changed:
    - Age
    - Sex
    - Family health history/genetics
    - Infections

- Risk factors can increase risk of developing cancer, but that’s not the whole story...

- Key players:
  - Immune system: surveillance
  - Inflammation: chronic inflammation

Stress & Immunity

General Adaptation Style

Stress

Fight or flight Cannon

CNS

Adrenals Cortex

Adrenals Medulla

Metabolism

Immune System

Circulation
Both glucocorticoids and catecholamines, the end products of the stress system selectively suppress cellular immunity. (Elenkov, 1999)

Patients with depression/stress showed increases release of CRH from hypothalamus, and is associated with suppression of NK cell activity through direct neural pathways as well as hormone-mediated pathways. (Schneiderman, 1992)

Chronic inflammation can cause genetic damage via production of oxidizing compounds, such as reactive oxygen and nitrogen species. These products can induce the formation and accumulation of mutagenic, toxic, and/or genome-destabilizing DNA lesions.

The inflammatory state is necessary to maintain and promote cancer progression and accomplish the full malignant phenotype, such as tumor tissue remodeling, angiogenesis, metastasis and the suppression of the innate anticancer immune response.

Inflammation promotes development, maintenance and progression of cancer

Molecule (miR-155) that causes a drop in the levels of proteins involved in DNA repair, resulting in a higher rate of spontaneous gene mutations; miR-155 is upregulated by inflammatory stimuli.

Tili, 2011

Chronic psychological stress is related to a host of disease processes, and is likely more than simply a direct effect on levels of circulating cortisol.

Prolonged stressors resulted in glucocorticoid receptor resistance (decrease in sensitivity of immune cells to glucocorticoid hormones), which in turn results in failure to down-regulate inflammatory response (Cohen, 2012)

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**Mind-Body Modalities**

- Meditation
- Yoga
- Pranayama/Breathing
- Tai Chi/Qi Gong
- Guided Imagery
- Relaxation therapies
- Spiritual healing/prayer
- Music/art therapy
- Hypnotherapy
- Biofeedback
- Journaling

**INDUCE THE RELAXATION RESPONSE**

**COLLECTIVE MIND**

- The mind is “embodied” and “embedded”
- It’s not just the pt’s thoughts, emotions, but the intentions, empathy, compassions, thoughts of the practitioner

Rakel 2009

**MEDITATION**

- Meditation is about present moment awareness and calming the turbulence in the mind-field.
- 8 week program of meditation resulted in increased levels of antibody to flu vaccine, and prefrontal activation which is associated with positive affect (Davidson, 2003)

**SELECTED REFERENCES**

- Davidson, R et al. Alterations in Brain and Immune Function Produced by Mindfulness Meditation. Psychosomatic Medicine July/August 2003 vol. 65 no. 4 564-570.
Putting Prevention Into Practice:

*The UCSD Center for Integrative Medicine*  
*Natural Healing & Cooking Program*

Gordon Saxe, MD, PhD  
and Lauray MacElhern

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Our society is in the midst of intersecting crises . . .

- Global climate change
- Resource limits (water, energy, etc.)
- Aging population + obesity epidemic = increased burden of disease
- Spiraling health care costs

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*Obesity and Cancer*

- Obesity is associated with increased risks of many cancers:
  - Esophagus
  - Pancreas
  - Colon and rectum
  - Breast (after menopause)
  - Endometrium (lining of the uterus)
  - Kidney
  - Thyroid
  - Gallbladder
What are the main causes?

And there are non-dietary causes, too

What is the problem with our diet?

• Too many or the wrong kinds of fats?
• Too much sugar or white flour?
• Too much meat or animal protein?
• Too many chemicals or additives?
• Insufficient fiber or micronutrients?

The Five Pillars of a Healthy Diet

(1) Whole, unrefined, unprocessed
(2) Plant-based
(3) Locally grown and in season
(4) Organically and biodynamically grown
(5) Balanced in terms of nutrients, energetics, and aesthetics
The new four food groups

- Whole grains
- Vegetables
- Beans & legumes
- Fruit, seeds, and nuts

Natural Healing & Cooking Program

The UCSD CIM
Natural Healing & Cooking Program

- Hands-on instruction in plant-based cooking
- Teaches use of food as medicine as well as philosophy and other elements of natural healing
- Shared “soup-to-nuts” meal with each class
- Recipes, videos, blog, and other materials
Recipe #1: Cooking Rice

**Ingredients:**
- 1 part rice
- 1.5 parts water
- Pinch of sea salt

*Key steps:* Wash at least 3 times and “toast” your rice before cooking.

Recipe #2: White Bean Butter

**Ingredients:**
- 2 cups white beans (any type: cannelloni, white navy beans, etc.) + ⅛ cup water or vegetable broth
- 2 Tbl tahini, or cashews, or toasted sesame seeds
- 2 cloves of raw, or roasted, garlic (to taste)
- 2 Tbl chickpea miso
- 2 tsp finely minced rosemary
- 1 tsp onion powder
- ½ tsp sea salt
- Chives, for garnish

Recipe #3: Collard Wraps

**Ingredients:**
- Collard greens
- Umeboshi plum vinegar
- Fillings: Rice, Spread, Veggies, Beans, Tempeh, etc.

*Natural Healing & Cooking Program*

- For online info & details: [http://cim.ucsd.edu/cooking](http://cim.ucsd.edu/cooking)
- Stop in the Learning Center for samples
- Enjoy the Healing Chef cook-off at tonight’s reception!
INTEGRATIVE CANCER CARE AND CHINESE MEDICINE

‘NOURISH LIFE, RESTORE HEALTH, BUILD COMMUNITY’

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CURRENT HEALTHCARE SITUATION

- HEALTHCARE COSTS ARE EXPECTED TO REACH 19.5% OF GDP BY 2017
- PHARMACEUTICAL ADVANCEMENTS ARE DIMINISHING
- THE U.S. IS CURRENTLY AT THE BOTTOM OF DEVELOPED COUNTRIES IN TERMS OF INFANT MORTALITY, HEART AND LUNG DISEASE, SEXUALLY TRANSMITTED INFECTIONS, ADOLESCENT PREGNANCIES, INJURIES, HOMICIDES, AND RATES OF CHRONIC DISABILITY DESPITE SPENDING TWICE AS MUCH PER CAPITA

Nature, body, medicine mutually harmonize

CURRENT HEALTHCARE SITUATION

- TOGETHER, THIS PLACES THE U.S. AT THE BOTTOM OF DEVELOPED COUNTRIES FOR LIFE EXPECTANCY
- ON AVERAGE, AN INDIVIDUAL IN THE U.S. CAN EXPECT TO LIVE ALMOST FOUR FEWER YEARS THAN THOSE IN OTHER DEVELOPED COUNTRY
- 25% OF SENIOR CITIZENS BECOME BANKRUPT DUE TO MEDICAL EXPENSES (2013)

‘NORMAL, HEALTHY’ SYMPTOMATIC DISEASES OF INCREASING SEVERITY
patterns of nature

51 CATEGORIES OF WATER

Water from Heaven

1.1.1. rain water
1.1.2. spring rain water
1.1.3. winter rain
1.1.4. sweet (beautiful) dew
1.1.5. sweet honey dew
1.1.6. clear water
1.1.7. winter frost
1.1.8. 12th month snow water
1.1.9. hail
1.1.10. summertime ice
1.1.11. spirit (5th month/5th day bamboo) water
1.1.12. upper (bamboo grove) pond water
1.1.13. house gutter water

Water from the Earth

2.1. flowing water
2.2. thousand li water, eastern flowing water, valley flowing water
2.3. spring source water
2.4. excellent well water
2.5. heavily drawn water
2.6. long-term water
2.7. sweet well water
2.8. jade well water
2.9. newly drawn water
2.10. solar period water
2.11. beginning of autumn well water
2.12. (5th month/5th day) well water
2.13. (8th, 9th, 10th solar term water)
2.14. sweet well water
2.15. jade well water
2.16. breast hole water
2.17. warm water
2.18. emerald sea water
2.19. salty gall water
2.20. eastern province water
2.21. fresh-boiled water
2.22. chopped-vegetable water
2.23. syrup water
2.24. rice water
2.25. copper kettle water
2.26. barley dish washing water
2.27. knife sharpening water
2.28. sleeping/salt water
2.29. pig trough water
2.30. warm water
2.31. washing hands and feet water
2.32. child washing water
2.33. different waters with toxicity

Dew is a yin qi fluid. The qi of this fluid moistens and brings lustre to the areas of the 'side passages'. Its qi and flavor are sweet and balanced and it lacks toxicity.

Use: Collect in a bowl during the time of the flourishing of the autumn dew. Simmered with malt sugar, it promotes longevity. It absorbs dangerous types of killing qi and is used in medicines that moisten the lungs and kill plaguing illnesses. It regulates the worms that cause sores upon the skin and treats leprosy. Collected from the tips of medicinal herbs during the wei (5) hour of the day, it cures the one hundred diseases. It treats xiaoke disease (type I diabetes) and causes the body to lighten. It resolves (feelings of) starvation. It causes the flesh to become plump and lustrous.

complexity and change
When the number of factors coming into play in a phenomenological complex is too large, scientific method in most cases fails. One need only think of the weather, in which case the prediction even for a few days ahead is impossible. Nevertheless, no one doubts that we are confronted with a causal connection, whose causal components are in the main known to us. Occurrences within this domain are beyond the reach of exact prediction because of the variety of factors in operation, not because of a lack of order in nature.

- Albert Einstein

The universe at the most essential level is a phenomena of ‘breath’

The expanding aspect of nature’s breath is called ‘yang’ (阳)

The contracting aspect of nature’s breath is called ‘yin’ (阴)

The space/time fabric of nature’s breath is called ‘qi’ (气)

The movement in accordance with nature’s breath is called ‘flow’ (shun 顺)

The movement against nature’s breath is called ‘counterflow’ (ni 违)

Moving with nature’s breath brings health, vitality and longevity

Moving against nature’s breath brings illness, premature degeneration and death

Where the body cannot move with nature’s breath is called an ‘illness’ (bing 病)

Anything that restores the body’s ability to move with nature’s breath is called a ‘treatment’ (bing 病)

Two types of pathology exist: diseases of contraction (yin - bi 鬱) and diseases of expansion (yang - kuang 遼)

Nature’s Breath

Nature’s Breath
WHAT IS A SCIENCE?

- Scientific observations must be based on or be consistent with demonstrable observations of the physical world.
- Scientific observations must be understood within the context of a larger theoretical framework.
- Scientific theories must possess consistent predictive power.

ANCIENT SCIENCE

- Most highly values knowledge from the past (qian 前).
- Scientific conclusions are drawn from detailed observations of the natural world.
- Views the cosmos as being a place of continuous change and transformation.
ANCIENT SCIENCE

- Studies the patterns behind the world of manifest form (xing 形)
- Views the experience of the observer as an integral part of the scientific process
- Reduces complexity to simplicity
- Uses a symbolic language structures

MODERN SCIENCE

- Highly values knowledge from the present, future and recent past (hou 後)
- Scientific conclusions are drawn from detailed observations of the natural world
- Focusses on aspects of nature that are (believed to be) fixed and unchanging

MODERN SCIENCE

- Attempts to limit the influence of the observer and their experience
- Describes a world of increasing complexity
- Primarily studies the laws of manifest phenomena (xing 形)
- Uses a linear language structure

NATURAL COMPLEXITY

TONIFY THE CENTER, AUGMENT THE QI DECOCTION
BUZHONG YIQI TANG (补中益气汤)

- Zhi Huang Qi (Honey-fried Astragalus Root) 5-10g
- Ren Shen (Ginseng Root) 3g
- Zhi Gan Cao (Honey-fried Licorice) 3g
- Chao Bai Zhu (Dry-fried Atractylodes) 1.5-3g
- Chen Pi (Aged Tangerine Peel) 1.5-3g
- Dang Gui (Angelica Root) 1.3-3g
- Sheng Ma (Cimicifuga Root) 1-1.5g
- Chai Hu (Bupleurum Root) 1-1.5g

Source: Piwei Lun (Spleen, Stomach Treatise by Li Dong Yuan 1180-1252 A.D.)

Treats qi taxation damage to the stomach and spleen from dietary irregularities and overwork with internal heat effusion.

Preparation: Decoct in three cups of water until one cup remains. Drink slightly warm, not with meals.

NATURAL COMPLEXITY

THE PRIMARY BIO-ACTIVE INGREDIENTS OF ASTRAGALUS MEMBRANACEUS:

1. Acetylastragaloside I
2. Astragalosides I-IV
3. Isoastragalosides I-II
4. Astramembranin II
5. Cycloostragagenol
6. Cyclosiversigenin
7. Soyasaponin I
8. Traganantha
9. Kumatakenin
10. Fomononetin

NATURAL COMPLEXITY

TONIFY THE CENTER, AUGMENT THE QI DECOCTION
BUZHONG YIQI TANG (补中益气汤)

TOTAL KNOWN BIO-ACTIVE INGREDIENTS = 116

Each of these bioactive ingredients are influenced by:
- Region in which plants are grown
- Season in which they are harvested
- Annual climate
- Season/time of ingestion by the patient
- Age of the patient
- Digestive system of the patient
- Specific herb pre-preparation (paozhi 熟制)
- Known and unknown interactions of multiple active compounds
- Method of ingestion (pill, decoction, etc.)
- Individual’s unique biochemistry and physiology
- Individual’s specific disease process
MODERN ACUPUNCTURE

MAI VESSELS

LUNG MAI VESSEL

LONGITUDINAL YANG PATTERNING (JING)

COLLATERAL YIN PATTERNING (LUO)

COMBINED YIN AND YANG PATTERNING (JING LUO)
COMBINED YIN AND YANG PATTERNING (JING LUO 經絡)

LONGITUDINAL YANG PATTERNING (JING 經)

COLLATERAL YIN PATTERNING (LUO 絜)

BLOOD VESSELS FLOW IN THE STREAMS AND VALLEYS OF THE FLESH (XIGU 溪谷)

ANCIENT NINE NEEDLES (九針)
ACUPUNCTURE WAS ORIGINALLY A TYPE OF SURGERY THAT RESTORED THE CIRCULATION OF THE BODIES VASCULAR PATHWAYS

Ide AG, Baker NH, Warren SL. vascularization of the brown-pearce rabbit epithelioma transplant as seen in the transparent ear chamber. Am J Roentgenol. 42:891-899 (1939)

CELIAC ANGIOPRAM OF HEPATOCELLULAR CARCINOMA

凡刺之法先必本于神

‘IN REGARD TO THE ACUPUNCTURE METHOD, THE VERY FIRST THING IS THAT (ITS PRACTICE) MUST BE ROOTED IN SHEN (神).’

LINGSHU, CHAPTER 8

BENSHU 本神
‘ROOT SHEN’
"The generation of things is called ‘hua’ transformation (化). The maturation of things is called ‘bian’ transformation (變). Aspects of yin and yang that cannot be measured are called ‘shen’ (神). Manifestations of shen that lack (predictable) movement are called sacred.”

Suwen, Chapter 66

"Treatise on the original patterns of heaven"

Heavenly shen guides the emergence of the ten thousand things”

Albert Einstein (1879–1955)
CANCER TREATMENT

- Improve microcirculation to area (carefully considered strategies)
- Repair areas of the body where there has been surgery or radiation
- Remove chemotherapy medications stored within the body’s tissue
- Treat the underlying configuration that lead to the original generation of the cancer

- Early-stage cancer with high potential for metastasis (e.g., malignant melanoma) - biomedical intervention, restore circulation
- Early-stage cancer with effective western therapies (e.g., localized colonic polyp) - biomedical intervention, restore circulation
- Mid-stage cancers treated with western intervention (e.g., colon cancer s/p surgery, chemotherapy) - biomedical intervention, restore circulation, counter side effects of therapy

- Late stage cancer with high tendency for metastasis (e.g., disseminated lung cancer, ovarian cancer) - balanced biomedical intervention and Chinese medicine therapy
- Hospice care - reevaluate diagnosis, supportive palliative care
- Before cancer appears - normalize circulation to prevent cancer occurrence

CASE HISTORY #1

- 72-year old female with recurrent invasive oral squamous cell carcinoma s/p 2 radical neck dissections
- Hx of severe lichen planus and discoid lupus
- Sjogren’s syndrome
- Asthma
- S/p cholecystectomy
- Severe reflux with vomiting
- Urethral/vaginal strictures
- Multiple ventral hernias
- Multiple other medications, conditions and surgeries
- 4-month prognosis
The liver foot jueyin mai vessel arises from within the thicket of hairs on the first toe (肝足厥陰之脈). Ascending upward, it flows along the inner aspect of the foot to an area one cun above the inner malleolus (上踝八寸處). Passing the ankle it emerges eight cun above (on the leg), to cross and emerge behind the taiyin (脾經). It then ascends along the (inner) posterior aspect of the knee and flows along the yin aspect of the thigh to enter the pubic hair and pass through the genitals (腎之脈). Moving through the lower abdomen it wraps the stomach, joins with the liver and nets with the gallbladder (膽經). It then passes through the diaphragm and spreads along the (wall) of the chest (上膈). Passing behind the pharynx, it ascends to enter the palate (齒齦) and then joins the system of the eyes and emerge upon the forehead, where it follows the du mai vessel to meet the vertex of the head (頭經). When there is disordered stirring within (the vessel), there is pain in the waist and difficulty bowing the head forward (肝之脈). In men, there will be inguinal hernias (少腹痛). In women there will be pain and heaviness within the lower abdomen (膚痛). When severe, the throat will be dry and the facial complexion will be faded and ashen (肝痛). Related to (this vessel) relation to the liver, additional symptoms include: chest fullness, counterflow vomiting, diarrhea with undigested food, fox hernias, and incontinence or obstructions of urine (肝火).
Cost of medical supplies for 6 months of therapy $30
Dietary and Mind-body Combined Interventions

Gordon Saxe, MD, PhD
UCSD Center for Integrative Medicine

Food for the body, food for the mind

Irving Saxe, Dr. Tony Sattilaro, & the barefoot epidemiologist

Diet and mind-body approach to pancreatic cancer

International variation in PC incidence

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1.0 per 100,000</td>
</tr>
<tr>
<td>Sweden</td>
<td>55.3 per 100,000</td>
</tr>
<tr>
<td>United States</td>
<td>102.1 per 100,000</td>
</tr>
</tbody>
</table>

Hypothesis: Dietary management may improve survival from nutritionally-linked cancers based on analysis of representative cases

Carter J, Saxe G, Newbold V, Peres C, Campeau R, and Bernal-Green L.
Tulane School of Public Health and Tropical Medicine
Diet & mind-body intervention and pancreatic cancer survival

- Historical cohort study of survival time from date of diagnosis to death
- 101 patients identified who had been diagnosed with primary adenocarcinoma of the pancreas and received macrobiotic counseling between 1980 and 1984
- 37 patients (or next-of-kin) were located
- 26 were deemed to have followed a macrobiotic diet for at least 3 months
- SEER (national tumor registry) control group

Problem of prostate cancer

- > 200,000 new prostate cancer (PC) cases, 40,000 recurrences, and 30,000 deaths/yr; prevalence increasing
- 1 in 6 men will develop invasive PC
- PC will soon overtake breast cancer as cause of death
- New treatment strategies needed

Diet & mind-body intervention and pancreatic cancer survival

- Study of survival from time of diagnosis until death
- 101 patients identified who had been diagnosed with carcinoma of the pancreas and received macrobiotic counseling between 1980 and 1984
- 37 patients (or next-of-kin) were located
- 26 followed a macrobiotic diet for at least 3 months
- SEER (national tumor registry) control group

Recurrent prostate cancer

- Patients with recurrent PC have increased risk for developing metastases and death from PC
- RPC may be particularly diet-sensitive
- PSA kinetics - excellent biomarker of progression
- Long asymptomatic interval makes dietary intervention feasible
- Growing numbers of men will suffer from RPC

Survival of diet & mind-body vs. SEER pancreatic cancer patients

Diet/nutrition – possible risk factors

- Red meat
- Dairy food
- Saturated fat
- Dietary or supplemental calcium
- Body weight (advanced disease)
- Excess calories
Diet – possible protective factors

- Whole grains, legumes, seeds
- Vegetables, especially brassica family
- Tomatoes and other lycopene-rich food
- Vitamins D & E
- Selenium
- Pomegranate juice
- Green tea
- Soy foods

Research question:

- Can adoption of a plant-based diet, combined with adoption of a mind-body discipline, slow the progression of recurrent prostate cancer?

Subjects

- PC patients who had undergone radical prostatectomy +/- post-op radiation therapy.
- Subsequently found to have PSA evidence of recurrent disease.
- No hormonal therapy use.
- N = 13

Reminder from Mom: *There’s more to life than just food!*

- Develop a practice of meditation or prayer
- Obtain regular mild exercise
- Seek out natural healing elements and environments
- Avoid smoking, limit alcohol
- Cultivate social support and build community
- Commit to a purpose larger than yourself

Subject recruitment

- Subjects referred by participating urologists from UCSD, the San Diego VA, and other area medical centers.
### Intervention

- Subjects enrolled in intensive, group-based diet and stress reduction program.
- Taught to adopt nutritionally balanced plant-based diet based on whole grains, vegetables, legumes, and fruits.
- Meat, dairy, other foods of animal origin, and refined and processed foods were limited or avoided.

### Assessments

- Diet (24-hour recalls)
- Anthropometric (body weight) assessment
- Psychosocial status (mood, anxiety, HRQOL, diet QOL) and urologic symptoms
- Blood samples drawn for PSA, lipids, sex steroid hormones, cytokines, and plasma carotenoids

### Intervention

- Individualized dietary counseling
- Weekly telephone coaching
- Intensive group program: ten 3-hour classes over a 6-month period
- Subjects were asked to identify a support person – usually their spouse – to go through the program with them

### Primary outcome measures

- Change in PSA rate (comparing pre-intervention rate at baseline with rate during intervention period)
- PSA rates based on log slopes and doubling times

### Group classes

- Didactic presentations on nutrition and PC
- Cooking instruction by a vegetarian chef
- Stress reduction training by a clinical psychologist/yoga teacher and oncology nurse
- Shared meal, support, and discussion

### PSA doubling time and PC survival

*Dr. Guy Dimonte:*

- How long until I can retire?
- The “penny experiment”
- Slope vs. intercept
Findings

- There was a significant decrease in the rate of PSA rise from pre-study to 0-6 months (p<0.01).
- Median PSA doubling time increased from 11.9 months (pre-intervention) to 112.3 months (intervention).

Findings

- Nine of 10 subjects had a reduction in their rates of PSA rise and an improvement in their PSA doubling times.
- Four of 10 subjects experienced an absolute reduction in their PSA levels over the 6-month intervention period.

Healthful Lifestyle Teaches Prostate Genes to Behave

Living right—with a good diet, exercise, and low stress—brings out the best in your genes

By Bernadine Healy, M.D.

Saturday, June 21, 2008

Mapping diet-gene interactions

Figure 1: ADAM12

Intervention Effects on Gene Expression in Prostate Cancer

Pre-intervention  Post-intervention
### Effects on telomere length

![Telomere Image]

### When should diet and mind-body combined intervention be offered?

- When there is no accepted treatment other than watchful waiting
- When, if used alongside conventional treatment, it can enhance Tx outcome or reduce side effects
- Once conventional treatment has been completed (to prevent risk of relapse and increase survival)
- In situations in which a competent, fully informed patient declines conventional treatment
I. History of naturopathic oncology and its role in integrative oncology

- HIV/AIDS epidemic of 1980–1996 spawned implementation and research on immunomodulating natural medicine
- American Board of Naturopathic Oncology formed in 2005
- FABNO national board certification in 2006

III. BIORC 2009–2012 Therapy and Outcomes: Uncontrolled Outcome Study

- April 2007 McCullough retrospective survival outcomes in lung cancer patients
- Survival outcomes in colon cancer
- Limitations of uncontrolled outcomes studies

IV. NIH-funded Breast Cancer Study

- Matched controlled study
- Prospective outcomes study

V. Promising future Naturopathic Cancer Therapy Development and Outcomes Evaluations

- Oncomycology immune therapy platform of TLR, dectin and inflammasome receptor agonists
- IV curcumin in GBM
- Ultrahigh dilutional taxol
- Radiofrequency tumor treating fields
- Qi gong in GBM

WHAT NEXT?
The application of evidence-based Complementary and Alternative Medicine (CAM) practices by trained physicians who care for people with cancer.

IO providers are NDs, DAOMs, and MDs

Primary IO Research Questions

- What do we know about preventing relapse after primary treatment?
- What are we able to confidently offer our stage IV patients to improve progression free survival?
- Is it possible to reverse stage IV disease?
- Does improved Quality of Life (QoL) translate into survival benefit?

History of Naturopathic Oncology and its Role in Integrative Oncology

- HIV/AIDS epidemic of 1980–1996 spawned implementation and research on immunomodulating natural medicine
- ND work on hepatitis C began in 1990s and generated antiviral and immune therapies relevant to cancer
- Oncology Association of Naturopathic Oncology (OncANP) founded 2004
- American Board of Naturopathic Oncology formed in 2005
- OncANP initiated credentialing process for Naturopathic Doctors in 2006. A separate and independent board, the American Board of Naturopathic Oncology (ABNO) was established that oversees the process.
- Fellow of the American Board of Naturopathic Physicians (FABNO) certification became the standard credential.

So Far, Two Main Types of IO Clinical Research

1) Systematic reviews of randomized and non-randomized clinical trials of single natural product CAM treatments, such as mistletoe, and Trametes versicolor mushroom
2) Retrospective studies of IO impact on survival

Vis Medicatrix Naturaee (the self-healing ability of living organisms) is aided by the following modalities:

1. Botanical medicine (western and eastern botanical medicine: oral, topical, subcutaneous, IV)
2. Nutritional (oral and IV)
3. Hydrotherapy (sauna tissue detoxification, constitutional hydrotherapy, hyperthermia)
4. EMF/RF signals (homeopathy, sine wave, laser, biomat)
5. Mind–body medicine
6. Acupuncture
7. Physical medicine (cranio–sacral, spinal manipulation)

Randomized and Non-randomized Clinical Trials of Single Natural Product CAM treatments

- NIH-funded trials in mistletoe in Germany (NCT01378702), Korea (NCT00516022), Israel (NCT01401075; NCT 00516022) and the USA (NCT00079794; NCT00283478)
- NCCAM-funded pre-clinical and clinical trials of T. versicolor (Bastyr/UMinn/UW).
- IV ascorbic acid for advanced cancer
Use of Historic Data as Controls in Retrospective Studies

- **Block’s team** was first to compare results in breast cancer patients treated at an IO clinics with historical data published in breast cancer clinical trials.
- Median survival in the IO–treated stage IV patients was 38 months and five–year survival was **27%** compared to **17%** among comparison patient data.

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**BJORC 2009–2012 Therapy and Outcomes: Outcomes Study**

- April 2006 McCullough retrospective survival outcomes in lung cancer patients
- Survival outcomes in colon cancer
- NIH funded breast cancer matched controlled

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**Bastyr Integrated Oncology Research Center (BJORC) Model**

Complementary and Alternative Medicine (CAM) and IO care provided by physicians are evidence-based and are exemplary of ‘best practices’ that have arisen in the field.

IO = ND, DAOM, MD oncology specialists

IO = ND oncology, TCM oncology, mind–body medicine and palliative medicine

Integration = whole person, ‘mind–body–spirit’, comprehensive care, same chart, integration east and west, communication with each pt’s oncology team

IO Each of the IO treatments commonly used is designed to influence some aspect of tumor inhibition including:
- Anti- and pro-inflammatory
- Immunomodulatory
- Anti-angiogenic
- Anti-metastatic activity.

The core CAM approaches used in BJORC include acupuncture, nutraceutical therapy, dietary, botanical therapy, as well as physical and psychological rehabilitation after primary cancer treatment.

For a review of the evidence base for each of these IO practice guidelines see Abrams and Weill (eds.) Textbook of Integrative Oncology, Oxford University Press, 2009.

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**Principles of IO Treatment**

- **Avoidance of some herbal products** during chemotherapy because of drug–herb interactions
- **Avoidance of some antioxidants** during radiotherapy and chemotherapy
- L-glutamine **orally** to prevent peripheral neuropathy during chemotherapy protocols that are likely to induce this side effect
- **Alpha lipoic acid** after platinum-containing regimens to prevent and treat nephropathology
- **Acupuncture therapy** for nausea, vomiting, fatigue, menopausal hot flashes, anxiety, depression, insomnia, arthritis, and leukopenia concurrent with chemotherapy, radiation and hormone therapy
- **Acupuncture therapy, fish oil and alpha lipoic acid** for peripheral neuropathy and cancer-related pain
Principles of IO Treatment, cont’d

- Melatonin for the treatment of insomnia and for its immunomodulatory properties.
- Assessment of vitamin D serum levels and oral replacement therapy if levels are below normal range.
- Assessment of immune function using natural killer cell functional activity as a biomarker before and after primary cancer treatment.
- VEGF plasma levels as assessment of neoplastic terrain.
- Prevention of thrombotic complications (D-dimer serum levels as assessment of clot risk in cancer patients).

Principles of IO Treatment, cont’d

- Improve glucose metabolism via diet and Metformin when indicated.
- Use of specific mushroom species for enhancing innate and cell mediated immunity pertinent to cancer biology.
- Bromelain and pancreatic enzymes for the prevention and treatment of lymphedema.
- Co-enzyme Q10 and/or hawthorne berry extract after completion of cardiotoxic chemotherapy drugs to prevent and treat cardiomyopathy defined as poor ejection fraction.
- Acetyl-l-carnitine to prevent and treat chemotherapy-related cognitive decline.
- Core secondary prevention program to prevent cancer recurrence that includes natural products that inhibit NF Kappa B (curcumin, ginger, holy basil ginseng and green tea extract), block P53 mutations (quercetin), and enhance tumor surveillance immunity (Trametes versicolor extract).
- Use of mindfulness-based stress reduction (MBSR) and psychological counseling for improving psychoneuroimmunological status during and after primary treatment and when indicated assignment to yoga, tai chi or qi gong classes.

Principles of IO Treatment, cont’d

- Dietary prescription for vegetable-based low calorie diet.
- Daily aerobic exercise prescription.
- Use of intravenous nutritional and botanical therapies that are included in naturopathic medical oncology scope of practice.
- Expert MD symptom management and utilization of hospice and palliative medicine services when needed.

BIORC opened February 2009 with a $50,000 private donation from Budge Brown.

BIORC provides for care or patients with cancer while providing data for an uncontrolled prospective observational study of licensed IO care in all types and stages of cancer patients.
To date there have been 6 AEs.
Four grade 2
Two grade 3
Grade 3 anemia following IV artemisinin
Grade 3 hypoglycemia during IV ascorbic acid tx
Grade 2 pain in lung lesions after mistletoe injection
Grade 2 vomiting during IV ascorbic acid tx
Grade 2 hot flash during IV silibinin
Grade 2 bleeding in sarcoma following topical
application of medical honey bandage
All resolved

IO Research Questions
- Does IO care influence patient outcomes?
  - If so, is it cost-effective?

  Compared to what?
  Historic published data
  Clinical trial data in stage IV
  Tumor registry data
  But how to control for characteristics of IO
  users??

RCTs of licensed IO care
- Are unethical (RCT of IO care vs no IO care)
- Are impractical (FDA IND for each IO therapy)
- A randomized referral RCT might work in a
  conventional oncology center (SCCA or UCSD).
A Prospective Matched Controlled Research Design

1. Can provide adequate methodology to determine the safety, effectiveness, and cost-effectiveness of physician provided IO care.
2. Do not restrict patient choice and no FDA IND required
3. Can use national and state cancer registries to identify comparison patients who do not use IO.
4. Can include freestanding community IO clinics individually or networks of such clinics broadening the patient population studied and allowing for faster recruitment and enrollment which could allow for more timely evaluation.

Study Aims

Primary Aims
1. Describe the treatments received by breast cancer patients receiving Integrative Oncology (IO) care from community clinics, and the total cost of such care.
2. Compare the QOL in IO patients with their matched controls

Secondary Aims
1. Collect pilot data on survival and disease free survival at 6 months and yearly.
2. Describe CAM use by patients in usual care and compare outcomes.

N = 300 IO cases and 1200 matched controls (1:4)

IO Outcomes Study Clinics

1. Bastyr Integrative Oncology Research Center (BIORC) in Kenmore, WA
   Leanna Standish, ND, PhD, LAc, FABNO
2. Seattle Cancer Treatment & Wellness Center (SCTWC) in Renton, WA
   Paul Kelly, ND, FABNO; Letitia Cain, ND, FABNO; Mark Cigracr, ND, FABNO
3. Institute of Complementary Medicine (ICM) in Seattle, WA
   Chad Aschtgen, ND, FABNO
4. Seattle Integrative Oncology at Providence Integrative Care (SIOPPC) in Lacey, WA
   Chad Aschtgen, ND, FABNO
5. Red Cedar Wellness Center (RCWC) in Bellevue, WA
   Laura A. James, ND, FABNO (includes Bellingham Natural Family Medicine)
   Jyrin Norris, ND, ARNP, LAc, FABNO (includes Providence Regional Cancer Partnership in Everett)

Fred Hutchison Cancer Research Center (FHCRC) and Bastyr team have worked out the operational definitions and mechanics of collecting, analyzing and reporting IO clinical, laboratory, and QOL data from cancer patients.
As of 3–6–2013
498 women with breast cancer have enrolled in the study.
117 IO cases (Cohort 1) ↓
155 Cohort 1As ↓
226 matched comparison women

Table 1. Accrual by Cohort
<table>
<thead>
<tr>
<th>Status</th>
<th>Cohort-1 (does not include C-1A)</th>
<th>Cohort-1A</th>
<th>Cohort-2</th>
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<tbody>
<tr>
<td>Active</td>
<td>43</td>
<td>144</td>
<td>218</td>
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<tr>
<td>Completed Study</td>
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<tr>
<td>Withdrawn</td>
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<tr>
<td>Deceased</td>
<td>83</td>
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<tr>
<td>Inactive (other reasons)</td>
<td>118</td>
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<tr>
<td>Total</td>
<td>117</td>
<td>155</td>
<td>226</td>
</tr>
</tbody>
</table>

Table 4. Number of Deaths
<table>
<thead>
<tr>
<th>Stage of Disease</th>
<th>Cohort-1 (does not include C-1A)</th>
<th>Cohort-1A</th>
<th>Cohort-2</th>
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<tbody>
<tr>
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<td>15</td>
<td>0</td>
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<tr>
<td>I</td>
<td>18</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>II</td>
<td>8</td>
<td>56</td>
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<tr>
<td>III</td>
<td>5</td>
<td>20</td>
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<tr>
<td>IV</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>38</td>
<td>214</td>
</tr>
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</table>

Table 5. Adverse Events
<table>
<thead>
<tr>
<th>AE Category</th>
<th>AE</th>
<th>AE</th>
<th>AE</th>
<th>AE</th>
</tr>
</thead>
<tbody>
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Note: Deceased includes only participants who died while they were still considered active on study. Does not include participants who became inactive for another reason, and then later died. See Table 4 for total deaths.

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Publications


2013 Presentation

- "Integrative oncology consultation does not delay initiation of primary treatment for breast cancer" Andersen, MR., Dale, L., Sweet, E., Dowd, F., Gaul, M., Bereznay, E., & Standish, LJ. To be presented at the 2013 meeting of the Society for Behavioral Medicine Annual meeting in March 2013, San Francisco, CA.

Most promising IO treatments for stage IV cancer patients

- Vaccines + oral beta–glucan adjuncts (TLR2 agonists?)
- IV nutrients (ascorbic acid, alpha lipoic acid)
- Fasting
- Hyperthermia (German contribution)
- Energy medicine (qi gong changes blood flow in GBM)
- EMF/RF field therapies
- Shamanic transformative experiences
- IV botanicals
  - IV liposomal curcumin
  - IV artemisinin
  - IV silibinin
  - IV resveratrol

A Bold Proposition

"Full-on" IO clinics have the best chance of discovering a safe and effective treatment for stage IV cancer.

How could we collaborate towards this goal?

A centralized REDCap database for FABNO data is feasible and warranted.

Promising Future Naturopathic Cancer Therapy Development and Outcome Evaluation

- Oncomycology immune therapy platform of TLR, dectin and inflamasome receptor agonists
- IV curcumin in GBM
- Ultrahigh dilutional taxol
- Radiofrequency tumor treating fields
- Qi gong in GBM

VISION

Nation–wide matched controlled IO outcomes study using SEER for controls

(IO = FABNO + DAOM + MD with bilateral communication between IO and conventional care providers)
Case Presentation: Norman J. Arnold

- **Diagnosis:** 54 yo businessman from Charleston, SC with primary adenocarcinoma of the pancreas and liver metastases
- **Date of Dx:** July, 1982
- **Method of Dx:** Unexpected discovery of “egg-size” tumor on pancreas during gall bladder surgery. CT scan confirmed extent of spread.
- **Conventional Tx:** Several CTx + 1 mouse monoclonal Ab Tx in Aug/Sept 1982

Case Presentation: Norman J. Arnold

- **Prognosis:** 6-9 months
- **Alternative Tx:** Macrobiotic diet (Aug. 1982 – present) + positive mental outlook + exercise
- **Remission:** NED on Dec. 1983 CT scan of pancreas, liver, and kidneys
- **Review:** Confirmed by expert panel at National Cancer Institute in 2002
If you ask Norman Arnold and his wife Gerry Sue about macrobiotics they will tell you that it is much more than a diet; it is "a beautiful way of looking at life". It is also a way of life that Norman feels has helped save him from cancer.

The story began in the summer of 1982 when surgeons unexpectedly discovered cancer while operating on Norman for gallstones. The tumor on his pancreas was egg-sized and the cancer had already spread to the liver. He was given six to nine months to live.

But Norman Arnold is a determined man and, as he puts it, "I wasn't going without giving it a fight." He refused to accept the bleak prognosis and began reading everything he could get his hands on about cancer and cancer treatment, particularly pancreatic cancer. He talked to doctors in Columbia, Charleston, Boston, Baltimore and Washington, DC and systematically researched conventional as well as unconventional therapies.

"I wanted to investigate everything, try what seemed most likely to be effective and, if it wasn't, fall back to the next best alternative." He subsequently rejected interferon, laetrile and hyperthermia but was later to undergo chemotherapy and monoclonal antibody treatment and attend a program in Texas on mental imagery and positive thinking. (See next page for definitions.)
CANCER TREATMENTS

Chemotherapy: the treatment of cancer with chemicals (drugs), usually administered intravenously. This is a medically approved mode of treatment.

Hyperthermia: an experimental treatment involving the use of radiofrequency, microwaves and ultrasound to kill cancer cells by heating the affected organ(s). Also under study is the use of heat with radiation, chemotherapy and immunotherapy.

Immunotherapy: the management of cancer by using the body’s own immune system. The patient is given a vaccine or stimulating material which may boost the body’s ability to kill cancer cells. This is an experimental treatment, usually used in conjunction with surgery, radiation or chemotherapy.

Interferon: a protein formed when cells are exposed to viruses. In test animals, the substance has shown some activity against tumors but human interferon is scarce because only small amounts can be made from large numbers of human white blood cells or other human cells grown in cultures. This is an experimental treatment.

Laetrile: a substance derived from pits and other seed parts of plants. Scottish embryologist John Beard proposed that a malignant growth was the result of fetal cells scattered throughout the body trying to form a new fetus. Laetrile supporters claim that the cyanide in laetrile can kill these cells. The scientific community feels that this theory has no scientific evidence to support it.

Mental Imagery: used as a supplement to medical treatment. The patient actively participates in treatment by consciously visualizing recovery with positive mental images. Not medically proven.

Monoclonal Antibody: the injection of antibodies from a mouse in which a tumor has been induced, to strengthen the patient’s immune system. Still in the experimental stages.

Radiation Therapy: the second most common treatment for cancer, following surgery. External radiation therapy involves the use of a machine to deliver x-rays or gamma rays to a tumor in or on a patient’s body. Internal radiation is the application of radioactive material directly into or on the area to be treated. It can be sealed in a container and inserted into a body cavity, given orally or injected.

NOTE: This is not a complete list of cancer treatments. For more information consult your physician.

“He stayed up nights reading medical journals,” says Gerry Sue. “He wanted to know as much about his illness as he could instead of just pretending it wasn’t there the way some people would.”

The medical journals confirmed what he had already been told: pancreatic cancer, especially once it has spread, was a death notice. Still Norman didn’t give up.

While still hospitalized for his gallbladder operation, he read the story of Dr. Sattilaro, a physician who had reversed a serious case of cancer with a macrobiotic diet. Shortly after reading the piece he got in touch with Becky Kubota, a macrobiotic cooking instructor in North Carolina. The day after he was released from the hospital, she arrived at the Arnold home in Columbia to teach Norman and Gerry Sue the basics of macrobiotics.

Based on ancient oriental philosophy

Based on yin and yang, the ancient oriental principles of balance, macrobiotic philosophy says that physical, mental and spiritual health is influenced by everything around us including the food we eat. Therefore, to maintain health we should follow a balanced diet and lifestyle in harmony with our natural environment. By eating a natural diet we can promote healthy functioning on many levels from simple nerve cells to the entire nervous system and even to complex behavior patterns.

Macrobiotic living encompasses not only diet but good family relationships, exercise and a positive outlook on life. The nutrition program is less a specific diet as it is a dietary approach, tailored to individual needs and environments.

Whole grains such as rice, oats, wheat, barley, rye, corn and millet are the staple. The typical menu consists of about 50 percent grains; 35 percent land and sea vegetables; 10 percent beans, fish, seeds and nuts; and 5 percent soups. Occasional fruits and fruit juices, when in season, are permitted and proportions of the diet can be varied according to individual health and environment. Dairy products, meat, caffeine, alcohol and refined carbohydrates such as sugar and white flour are to be avoided. Ground sesame seeds, sea salt, rice malt and other natural substances are used to flavor foods.

(Continued)
Arnolds meet Michio Kushi

Shortly after Kubota left, Norman and Gerry Sue flew to Boston to meet with Michio Kushi, founder of the East West Foundation, established to promote macrobiotic living. Kushi was a friend and student of the late Japanese philosopher George Ohsawa, who coined the word macrobiotic. He felt it reflected the spirit of what a healthy person should feel: macro, meaning large or great, and bios, meaning life.

Meeting Kushi was a turning point. He told Norman, “You can recover.” But to do so he would have to reverse the bad eating and lifestyle habits that had made him ill.

In his own words, Norman says he got sick because he was too intense about life, smoked cigarettes and ate the wrong foods. “Animal fat, lack of fiber, refined carbohydrates and sugar tend to clog the vital organs so they can’t get oxygen and function properly,” he says. “Cancer cells can grow in stagnant conditions but normal ones can’t.”

Although what Kushi said made sense to Norman he was still skeptical so he embarked on another investigation. This time he asked an attorney friend associated with his company to visit people around the country who had reportedly had success treating cancer with macrobiotics. Through the attorney’s reports and conversations that Norman and Gerry Sue had with these patients, he found they were people like himself. They had been given little medical hope for survival but were now leading normal healthy lives. There were even two men who had recovered from pancreatic cancer.

By the middle of August a second macrobiotic cook had arrived to teach the family a special healing diet for Norman. There are various macrobiotic healing diets and they differ according to the illness being treated but, in general, they are similar to the basic diet. The difference is that healing diets are somewhat narrower in the variety of foods eaten within the subgroups. For example, on Norman’s healing diet he could have only small amounts of white fish on occasion but a healthy person can also eat shrimp and other seafoods.

Norman says that a positive mental attitude is critical to the healing process. “Part of your nourishment comes from your surroundings and, to some extent, you must consciously create a peaceful environment,” he says.

It is a common macrobiotic practice to take a few moments before each meal to silently give thanks, similar to the Christian custom of saying grace. To eat food calmly and with gratitude is also part of the macrobiotic philosophy because an appreciative mind is said to be beneficial to digestion.

Macrobiotics compatible with conventional cancer treatment

Meanwhile Norman had also begun taking chemotherapy in the BMCC cancer clinic in August 1982. He praises the physicians and staff for their compassion saying, “Some doctors will not even treat a patient who is undergoing nontraditional treatment but the doctors and nurses at Baptist were very supportive, once they knew the diet wasn’t harmful to me.”

He stresses that a macrobiotic diet is compatible with conventional cancer therapy and attributes his freedom from nausea while he was taking chemotherapy to the absence of fat and grease in his diet.

“Norman was very cooperative and played an active role in his treatment,” says Dr. Bill Babcock, BMCC medical oncologist. “He approached cancer with the same aggressive attitude that he approaches everything in his life. He was an ideal patient and we’re pleased with his progress.”

In September 1982 Norman also underwent a monoclonal antibody treatment at the American Oncological Hospital in Philadelphia. This is an experimental treatment involving injection of the patient with antibodies from a mouse in which a tumor has been induced. The purpose of the treatment is to strengthen the patient’s immune system but it cannot be administered more than once. Gerry Sue accompanied him to Philadelphia and brought macrobiotic food to his room at every meal during his three-day hospital stay.

In the weeks that followed Norman had a few more chemotherapy treatments and became even more committed to a macrobiotic diet. Although it had begun as medicine it was now something that both Arnolds had developed a taste for. They were even able to follow the diet when they went out with friends by “brown-bagging” their meals or making advance arrangements with restaurants to prepare fish and vegetable dishes. “Most people are very cooperative,” says Gerry Sue, “If you explain to them that you are on a special diet.”
Family support key to recovery process

On December 21, 1983 a CAT scan of Norman Arnold’s liver, pancreas and kidneys confirmed the fact that he was completely free of what was originally expected to be terminal cancer.

He emphasizes that his wife’s desire to learn macrobiotic cooking and the whole family’s willingness to follow the diet and lifestyle with him were crucial to his getting well. He also credits a positive outlook, exercise program and possibly chemotherapy and monoclonal antibody treatment with being part of his recovery.

Anyone who meets the Arnolds can see that they must be doing something right because they radiate health and happiness. Gerry Sue’s past stomach problems have disappeared since she began following a macrobiotic diet and she says she has more energy now.

Before the cancer Norman had shown an inclination toward excess cholesterol and a mild disposition toward diabetes. Now his monthly SMA 23 blood tests show everything within normal limits.

Born in Charleston, South Carolina, Norman Arnold graduated college and served four years as a naval officer in the Pacific during the Korean conflict. After he returned he worked in all areas of his family’s business and eventually became president. Always active in community affairs, he was a founder and past president of the Boys’ Clubs of America in Columbia; served as chairman of the Children’s Bureau of South Carolina; was committee chairman on the Governor’s Economic Task Force; and was chairman of the Richland County Heart Fund. He was also one of a handful of men who founded Riverbanks Zoological Park and is a trustee of Heathwood Hall Episcopal School.

He still finds time to participate in a variety of sports and enjoys playing tennis with friends, his wife and their three teenage sons. A self-confessed former chocolate ice cream addict (half-gallon-a-night habit), Norman admits to an occasional craving for a chocolate chip cookie. So far he has resisted but says with a smile, “There are no saints in this order.”

-------------------------------

Although the macrobiotic diet has been beneficial to Norman Arnold, it is not endorsed by the medical community or the American Cancer Society. An article in the January/February 1984 issue of the CA-A Journal for Clinicians states: “After careful study of the literature and other information available to it, the American Cancer Society has found no evidence that treatment with macrobiotic diets results in objective benefit in the treatment of cancer in human beings.”

The article goes on to conclude that “the usefulness of macrobiotic diets in cancer treatment is undocumented and, if not properly planned to be nutritionally adequate, such diets could provide insufficient nutrition for cancer patients.”
Coping With Stress

Stress is defined as the body's response to an event or circumstance that arouses a strong emotional reaction. For most of us, stress is a fact of life and learning to cope with it successfully is a necessity.

Stressors alert the body to prepare for fight or flight by increasing production of adrenal hormones. Leaving home for the first time, a death in the family, the loss of a job or a divorce are stressors. But positive life changes such as marriage, the birth of a child, a new job or a promotion can also create stress. Stress can build up as a result of the minor hassles of life, for example, excessive noise in the workplace, traffic jams, periods of overwork and trivial disagreements. Excessive stress or the inability to cope in positive ways can contribute to back pain, headaches, ulcers, asthma, colitis and even cardiovascular disease.

Stress is only one of several factors associated with the onset of illness. It is more likely to affect your health if you have an inherited tendency toward a certain disease or if you have trouble coping with stress. By learning positive ways of coping you can enhance your chances for better health.

Some of the best ways to handle stress are:

- Take action to prevent the situation from happening again.
- Exercise, walk, jog, dance or meditate.
- Engage in a hobby.
- Talk to a friend or relative as soon as you can.
- Get it off your chest, blow off steam.

Some of the worst ways:
- Apologize even though you were right.
- Take it out on others, blame someone else.
- Keep it to yourself.
- Drink alcohol.
- Try to act as though nothing much has happened.
Tropical Storm

L5 Pedicle Broken
Broken Back
Failed
Fusion/Lamonecctomy
Heavy Drugs

Stage Four Cancer
“Get up, Daddy.”

Organic Veganism
Fasting
Pranayama
Meditation
Yoga Postures
Purifications
One Man’s Journey with Cancer
INFORMING THE SCIENCE AND BUSINESS OF INTEGRATIVE CARE

Glenn Sabin
Director, FON Therapeutics, Inc.
GlennSabin.com
FONtherapeutics.com

Integrative Oncology 2013
UC San Diego Center for Integrative Medicine
April 6, 2013

Act I.
In the Beginning

Disclosures
None.
Act II. Discovery of Illness

Act III. Education, Hope and Empowerment

Education, Hope and Empowerment

Education, Hope and Empowerment
Empowerment
GOAL: BUILD A STRONGER IMMUNE FUNCTION BY CREATING AN ANTICANCER ENVIRONMENT
→ Becoming an N-of-1
→ Best of Conventional Diagnostics and Examinations
→ Psychosocial Support
→ Mindfulness-Based Stress Reduction Techniques
→ Plant-Strong, Sugar Free
→ Nutritional Pharmacology
→ Exercise and Circadian Health
→ Hydration

Leukemia Strikes Hard
→ Severe Anemia
→ First Experience of Full Force and Effect of Disease
  • constant low-grade fever
  • night sweats
  • severe fatigue
→ Consulting with the Experts = Unanimous Decision

Continuing the Experiment
→ To Treat or Not to Treat?
→ Decision to Move Forward
  • sick leave
  • nutraceutical regimen
  • exercise with anemia
  • renewed focus on mind-body
  • monitoring the blood

Act IV.
Change in Health
→ Best of Conventional Diagnostics and Examinations
→ Psychosocial Support
→ Mindfulness-Based Stress Reduction Techniques
→ Plant-Strong, Sugar Free
→ Nutritional Pharmacology
→ Exercise and Circadian Health
→ Hydration

Act V.
Clinical Success
“Integrative health care is derived from lessons integrated across scientific disciplines, and it requires scientific processes that cross domains. The most important influences on health, for individuals and society, are not the factors at play within any single domain—genetics, behavior, social or economic circumstances, physical environment, health care—but the dynamics and synergies across domains. Research tends to examine these influences in isolation, which can distort interpretation of the results and hinder application of results. The most value will come from broader, systems-level approaches and redesign of research strategies and methodologies.”

Source: Institute of Medicine 2009
Cannabinoinds in Pain and Palliative Care

Donald I. Abrams, M.D.
Chief, Hematology-Oncology
San Francisco General Hospital
Integrative Oncology
UCSF Osher Center for Integrative Medicine
Professor of Clinical Medicine
University of California San Francisco

Cannabis as Medicine

- Cannabis (marijuana, hemp) is one of the oldest known psychoactive plants
- First reported use as medicine > 3000 years ago
- Introduced into Western medicine in 1840’s by Dr. W.B. O’Shaughnessy
- Promoted for putative analgesic, sedative, anti-inflammatory, antispasmodic and anticonvulsant properties

Additional products available in 1906 manufactured by Eli Lilly, Wyeth, Sharp & Dohme
Cannabis as Medicine

- Interest waned in early 1900’s with advent of opiates, barbiturates, chloral hydrate, aspirin and syringes
- First federal restrictions in 1937 with Marihuana Tax Act ($1/oz for medical use, $100/oz for recreational users)
- AMA virtually alone in opposing act
  - Believed objective data re: harmful effects were lacking
  - Act would impede future clinical investigations
  - Removed from US Pharmacopoeia in 1942

Controlled Substances Act 1970

<table>
<thead>
<tr>
<th>Schedule I</th>
<th>Schedule II</th>
</tr>
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</table>
| Potential for abuse | High
| Accepted for medical use | No
| Safety | Lack of accepted safety for use, may lead to physical or psychological dependence

Schedule I Substances

- Marijuana
- Heroin
- LSD
- Mescaline
- Other hallucinogenic amphetamine derivatives
- Methaqualone
- Illicit fentanyl derivatives
- Gamma hydroxybutyrate (GHB)

Cannabis as Medicine

- Contains over 400 chemical compounds
- Highest concentration of bioactive compounds in resin exuded from flowers of female plants
- Main psychoactive component believed to be delta-9-THC
- At least 70 other cannabinoids identified in pyrolysis products
- delta-8-THC similar in potency but only in small concentration

Cannabinoids 101

- A group of C_{21} terpenophenolic compounds uniquely produced by cannabis
- Endogenous cannabinoids e.g. anandamide are termed endocannabinoids
- Synthetic cannabinoids e.g. HU-210 have been developed
- Phytocannabinoids suggested to designate C_{21} compounds produced by cannabis

Non-THC Cannabinoids

- Cannabidiol CBD
- Cannabinol CBN
- Cannabichromene CBC
- Cannabigerol CBG
- Delta-8-THC ∆^8-THC
- Tetrahydrocannabivirin THCV
Cannabidiol (CBD)

- Modulates the pharmacokinetics of THC
  - Very low affinity for CB1 and CB2 receptors
  - Slight affinity for CB receptors as an antagonist
  - May modulate downstream signal transduction
  - Potent cytochrome P450 3A11 inhibitor thus blocking formation of 11-OH metabolite
- CBD possesses sedative properties, reduces anxiety and other unpleasant psychological side effects of pure THC

Non-THC Components of Marijuana

- Δ9-tetrahydrocannabinol (THC) is the primary active ingredient of cannabis
- Secondary compounds may enhance the beneficial effects of THC
- Other cannabinoid and non-cannabinoid compounds may reduce THC-induced anxiety, anticholinergic effects and immunosuppression
- Terpenoids and flavonoids may increase cerebral blood flow, enhance cortical activity, kill respiratory pathogens and provide anti-inflammatory activity

Cannabinoid Receptors

- CB₁ and CB₂ receptors identified
- Receptors coupled to G-proteins and inhibit adenylate cyclase
- CNS responses mediated via CB₁ (largest concentration in basal ganglia and cerebellum)
- Activation CB₁ receptor:
  - inhibits N-type voltage-gated Ca channels
  - increases K conductance in hippocampal neurons
  - increases prostaglandin production

CB₁ Receptor Regional Distribution in Rat Brain

Cannabinoid Receptors

- CB₂ receptor not expressed in the brain
- Originally detected in macrophages and marginal zone of the spleen
- Largest concentration in peripheral blood present in B-cells and NK cells
**Endocannabinoids**

- CB1 Receptor
- Endocannabinoids
- Signal Transduction
- Appetite
- Cognition
- Immune function
- Emesis
- Muscle control
- Neuroexcitability
- Pain
- Reward
- IOP
- Thermoregulation

**Manipulation of Endogenous Cannabinoid System**

**Activation**
- CB1 Receptor agonist
- CB2 Receptor agonist
- Enhanced EC synthesis
- Transporter blocker
- Altered signaling pathway

**Inhibition**
- CB1 Receptor antagonist
- CB2 Receptor antagonist
- Decreased EC metabolism
- Transporter activator
- Altered signaling pathway

Martin 2004

**THC and Chemotherapy N & V**

- Interest in 70’s prompted by anecdotal reports when available antiemetics were inadequate
- In randomized trials, oral THC better than placebo and equivalent or superior to prochlorperazine
- Smoked THC appeared superior to oral
- THC<metoclopramide<5-HT3 antagonists

**Oncologists’ THC Survey**

- 1000 responses from randomly selected members of American Society of Clinical Oncology surveyed in 1990
  - 44% had recommended marijuana to at least one patient
  - Marijuana believed to be more effective than dronabinol by 44%; dronabinol more effective by 13%

  » Doblin et al JCO 1991
Oral Delta-9 THC: An Approved Drug

Approved in 1986 for N&V from chemoRx; AIDS anorexia in 1992

Oral THC Pharmacology

- Low (6-20%) and variable bioavailability
- Peak [plasma] within 1-6 hr; may remain elevated for several hrs
- Initially oxidized in liver to 11-OH-THC, a potent psychoactive metabolite
- Further oxidation of 11-OH-THC leads to elimination products (urine and feces)
- Terminal half life 20-30 hrs

Smoked THC Pharmacology

- Rapidly absorbed into blood stream and redistributed
- Considerable amount of dose lost in smoke and destroyed by pyrolysis
- Peak blood levels achieved at end of smoking, decline rapidly over 30 minutes
- Smoking achieves higher peak concentration but shorter duration of effect
- Smaller amts 11-OH-THC formed

Cannabinoids and Appetite

- Anandamide in low concentrations in mice leads to a potent enhancement of appetite
- CB1 receptors implicated in food intake control n.b. lateral hypothalamus and limbic system locations
- CB1 knockout mice eat less than wild type litter mates
- CB1 receptors involved in motivational/reward aspects of eating

Cannabinoids and Appetite

- Endocannabinoids enhance reward effects via mesolimbic dopaminergic systems
  - System may be involved in suckling
  - Milk has high levels of 2-AG
  - CB1 antagonist given to mice at 24hrs causes them to stop suckling and die
- Phase II clinical trial of CB1 antagonist in obesity encouraging (3-4 kg ↓ in 2wks)

Pharmacological Blockade of the eCB System

Pharmacologically induced deficiency of the eCB system by SR141716 or AM251 may lead to:
- Increased anxiogenic-like behavior
  - Indicated in rodents
  - May be involved in the reinforcing effects of electrical brain stimulation
- Reduced sensitivity to the reinforcing effects of electrical brain stimulation
  - Decreased reward effects of stimulants (e.g., ethanol, sucrose, heroin, nicotine)
- Attenuated responsiveness to rewarding stimuli
  - Denker et al. (1997) Psychopharmacology
  - Cohen et al. (2002) Behav Pharmacol
  - De Vries et al. (2003) Psychopharmacology

- Increased duration of wakefulness, hyperarousal and vigilance
  - Santucci et al. (1996) Life Sci

- Similarities with melancholic depression

Courtesy of Dr. Patrik Roser
Cannabis and Appetite in Cancer

- Two clinical trials of dronabinol in cancer-related anorexia
  - 54 adults, placebo-controlled RCT: THC better
  - 459 adults randomized to dronabinol, megestrol or both: THC (49% ↑ appetite, 3% ↑ wt) inferior to megestrol (75% ↑ appetite, 11% ↑ wt) and combined Rx offered no added benefit
- Two trials (N=12 and 149) in HIV wasting with similar results

Reviewed in Ben Amar, J of Ethnopharmacology 2006

Cannabinooids and Pain

- Elevated levels of the CB1 receptor - like the opioid - are found in areas of the brain that modulate nociceptive processing
- CB1 and CB2 agonists have peripheral analgesic actions
- CBs may also exert anti-inflammatory effects
- Analgesic effects not blocked by opioid antagonists

THC and Analgesia

- Intravenous THC exerts potent antinociceptive effects
- Cannabinoid-induced analgesia appears linked to opioid system
- In cancer trial, oral THC 20 mg was comparable to codeine 120 mg but with marked psychological effects
- Cannabinoids also effective in a rat model of neuropathic pain

Marijuana in HIV Neuropathy

- HIV-related painful distal symmetric polyneuropathy is a common problem
- Current therapy for HIV neuropathy pain is inadequate
  - Opioids generally ineffective
  - Anticonvulsants in common use currently
  - Anecdotal reports of marijuana’s efficacy
- Cannabinoids effective in preclinical models of neuropathic pain

Supported in part by UC CMCR and NIH GCRC funds

Cannabis in painful HIV-associated sensory neuropathy

A randomized placebo-controlled trial


Objective: To determine the effect of smoked cannabis on the antinociceptive pain of HIV-associated sensory neuropathy and an experimental pain model. Methods: Prospective randomized placebo-controlled trial conducted in the NIAID Clinical Research Centers between May 2000 and May 2001 involving adults with parallel HIV-associated sensory neuropathy. Patients were randomly assigned to either placebo (0.5% terpeneenriched) or smoked cannabis (with the terpene content reduced four times daily) for 5 days. Primary outcome measures included pain levels, sleep quality, mood, and pain catastrophizing. Results: Twenty patients completed the study (10/group). Pain was significantly reduced in the cannabis group (p = 0.05). Total sleep time was not different between groups (p = 0.37). Conclusion: Smoking cannabis reduced pain levels in patients with HIV-associated sensory neuropathy. Supported in part by UC CMCR and NIH GCRC funds.

Figure 2. Flow of participants through the trial.
Experimental Pain Model

Baseline Characteristics by Study Arm

**Placebo N=25**
- Gender: 23 males (2 MTF TG)
- Age: Mean = 47 ± 7
- Race: 11 AA, 9 white
- HIV: 14 years
- CD4+: 442/mm³
- HIV RNA < 400

**Cannabis N=25**
- Gender: 20 males (1 MTF TG)
- Age: Mean = 49 ± 6
- Race: 9 AA, 12 white
- HIV: 15 years
- CD4+: 453/mm³
- HIV RNA < 400

Baseline Characteristics by Study Arm

**Placebo N=25**
- Neuropathy 6 years
- HIV: 7
- Meds: 14
- Both: 4
- Current ART: 22
- BL Pain: 52.0

**Cannabis N=25**
- Neuropathy 6 years
- HIV: 10
- Meds: 12
- Both: 3
- Current ART: 17
- BL Pain: 53.8

Baseline Pain Medications

Results: Neurology RCT

Abrams et al Neurology 2007

Results: Neuropathy RCT

Abrams et al Neurology 2007
Neuropathy RCT: Conclusions

- Smoked cannabis is an effective treatment in patients with painful HIV-related peripheral neuropathy
- Smoked cannabis was also effective in attenuating central sensitization produced by a standardized experimental pain model
- The magnitude of pain reduction from smoked cannabis is comparable to that reported in trials of gabapentin for painful HIV-related neuropathy

Abbams et al Neurology 2007

HIV Neuropathy Crossover RCT

- 28 HIV patients
- Placebo or active cannabis, dose escalation between 1-8% THC
- Inhaled 4 x/d for 5 d, then 2 week washout before cannabis or placebo
- 46% with > 30% pain reduction vs 18% placebo; NNT=3.5

Ellis et al, Neuropsychopharmacology, 2009

Cannabis Effect on Neuropathic Pain in Complex Regional Pain Syndrome

- 38 patients with central and peripheral neuropathic pain
- Randomized to high-dose, low-dose or placebo cannabis
- Linear analgesic dose response observed for both doses
- Effect not anxiolytic; reduces core nociception and emotional response to pain equally


Cannabis Effect on Post-traumatic and Postsurgical Neuropathic Pain

- Randomized, double-blind, 4-period crossover study enrolled 23 participants
- Inhaled 0, 2.5, 6 or 9.4% THC cannabis 25 mg tid for 5 days; 9 day rest between doses
- Average daily pain intensity significantly lower on 9.4% THC cannabis (5.4) than on 0% (6.1) \((p = 0.023; \text{difference} = 0.7, \text{95% CI 0.02–1.4})\)
- Improved quality of sleep also noted

Ware et al CMAJ 2010

Cannabinoid:Opioid Interactions

- Share several pharmacologic properties
  - Antinociception
  - Hypothermia
  - Sedation
  - Hypotension
  - Inhibition of intestinal motility and locomotion
- Initially thought to act on same pathways to produce their pharmacologic actions
Cannabinoid:Opioid Interactions

- Cannabinoids interact with kappa and delta receptors in production of pain relief
- Analgesic effects of opioids mediated by mu receptors, but may be enhanced by cannabinoid effects
- Cannabinoid:opioid interaction may occur at the level of their signal transduction mechanisms
  - Receptor activation for both leads to decreased cAMP production via G protein activation
  - Some evidence that cannabinoids might increase production or release of endogenous opioids

In mice and rats, THC greatly enhances analgesic effect of morphine in a synergistic fashion
- Increased potency of other mu opioids (hydromorphone and oxymorphone) seen with oral-Δ-9-THC in mouse models
- Possibility of enhanced and persistent analgesic effect at lower opioid doses

Welch and Cichewicz, multiple refs

Cannabinoid:Opioid Interaction Trial: Objectives

- Evaluate effect of vaporized cannabis on blood levels of prescribed opioids
  - Sustained release morphine
  - Sustained release oxycodone
- Determine the short-term side-effects of co-administration of cannabis and opioids
- Assess effect of vaporized cannabis on level of chronic pain

Funded in part by NIDA and NIH CRC grants

Cannabinoid:Opioid Interaction Trial: Design

- 5-day inpatient study in Clinical Research Center at SFGH
- 12-hour blood sampling on day 1 on stable daily dose of opioid analgesic
- Vaporization of 3.2% THC cannabis commences at 8 pm day 1; then three times daily at 8am, 2pm, 8pm
- After 8am vaporization on day 5, plasma sampled for 12 hours for opioid and THC levels
- Subjects complete drug effects questionnaire re: pain and other symptoms during PK draws

Participant Characteristics

<table>
<thead>
<tr>
<th>Morphine</th>
<th>Oxycodone</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>42.9 (33-55)</td>
<td>47.1 (28-61)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Opioid Dose</th>
<th>Pain Score day 1</th>
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</thead>
<tbody>
<tr>
<td>62 mg bid (10-200)</td>
<td>53 mg bid (10-120)</td>
</tr>
<tr>
<td>34.8 (29.4, 40.1)</td>
<td>43.8 (38.6, 49.1)</td>
</tr>
</tbody>
</table>

Pain Characteristics

- Musculoskeletal NOS 7
- Post-traumatic 4
- Arthritis 2
- Peripheral neuropathy 2
- Cancer 1
- Fibromyalgia 1
- Migraine 1
- Multiple sclerosis 1
- Sickle cell disease 1
- Thoracic outlet syndrome 1
Mean Morphine Level By Study Day

Mean Oxycodone Level By Study Day

Pain by Study Day

<table>
<thead>
<tr>
<th></th>
<th>Day 1</th>
<th>Day 5</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>(95% CI)</td>
<td>(95% CI)</td>
<td>(95% CI)*</td>
</tr>
<tr>
<td>Overall</td>
<td>21</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>39.6</td>
<td>29.1</td>
<td>-10.7</td>
</tr>
<tr>
<td></td>
<td>(35.8, 43.3)</td>
<td>(25.4, 32.8)</td>
<td>(-14.4, -7.3)</td>
</tr>
<tr>
<td>Morphine</td>
<td>10</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>34.8</td>
<td>33.6</td>
<td>-10.3</td>
</tr>
<tr>
<td></td>
<td>(29.4, 40.1)</td>
<td>(28.5, 38.6)</td>
<td>(14.8, -5.8)</td>
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<td>Oxycodone</td>
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<tr>
<td></td>
<td>43.8</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>(38.6, 49.1)</td>
<td></td>
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</tr>
</tbody>
</table>

*P<0.001

Conclusions

• Co-administration of vaporized cannabis with oral sustained release opioids is safe
• Co-administration of vaporized cannabis in subjects on stable doses of morphine or oxycodone appears to enhance analgesia
• Co-administration of vaporized cannabis trends towards lowering concentration of the opioids
  – The PK effects would be expected to reduce the analgesic effects of the opioids
  – The effect of vaporized cannabis to enhance opioid analgesia occurs by a pharmacodynamic, not a pharmacokinetic mechanism

IOM: Efficacy of Cannabinoid Drugs

• The accumulated data indicate a potential therapeutic value for cannabinoid drugs
  – Pain relief
  – Control of nausea and vomiting
  – Appetite stimulation
• THC therapeutic effects best established
• Effects of cannabinoids generally modest; usually there are more effective medications
Challenging Symptoms in Palliative Care

- Anorexia
- Weight loss ⇒ cachexia
- Nausea and vomiting
- Moderate to severe pain
- Anxiety
- Depression

Cannabis-Induced Euphoria

- Often described as a “side-effect” of Rx
- Is it really an “adverse experience”, particularly in the terminal patient?
- Is a single treatment that increases appetite, decreases nausea and vomiting, relieves pain and improves mood a potentially useful tool in palliative medicine?

Hi Dr Abrams,
I am contacting you to see about getting an extension of the medicinal marijuana letter you issued me last year which expired on March 21st. Although I did not use it until my last 5 sessions of chemo (me getting over the stigma of its use), it did what no other drug could do, completely solve the severe nausea I had. It allowed me to play with my children, attend their sports and school functions, and just function very normally in day to day activities. I cannot thank you enough for giving me that option! I am currently on a chemo vacation, after a clean scan and the only time I use medical marijuana now is when I have trouble sleeping. I would like to continue to use it for that purpose instead of relying on pharmaceutical options like Ambien etc.

The Safety of Cannabis

- No deaths have been reported from OD
  - Estimate 800 cigarettes required to kill (death secondary to CO not cannabinoid poisoning)
  - By comparison, 300 ml of vodka or 60 mg of nicotine would be lethal
  - Unlike opioid receptors, dearth of brainstem cannabinoid receptors
- Addictive potential and minor withdrawal syndrome less than or equal to caffeine

Cannabis as an Anti-Cancer Agent

- Increasing body of preclinical evidence suggests cannabinoids may have activity
- Anti-oxidant and anti-inflammatory effects
- Possibility of anti-tumor activity via cannabinoid receptors inducing apoptosis and impairing tumor vascularization
- Gliomas and skin tumors seem responsive in animal models

Cannabinoids and Cancer

- Cannabinoid administration to nude mice curbs growth of various tumor xenografts
  - Lung carcinoma
  - Thyroid epithelioma
  - Lymphoma
  - Skin carcinoma
  - Glioma

Velasco Neuropharmacology 04
Cannabinoids and Cancer

- Cannabinoids induce apoptosis in gliomas
- Cannabinoids administration in mouse models differentiates tumor vascular hyperplasia
  - Associated with reduced expression of VEGF and VEGF receptors
- Cannabinoids decrease the activity of matrix metalloproteinase-2; hence may also modify glioma invasiveness
  - All of the above in mice with gliomas

Velasco Neuropharmacology 04

Cannabidiol and Colon Cancer

- In colorectal cancer cell lines, CBD
  - Protected DNA from oxidative damage
  - Increased endocannabinoid levels
  - Reduced cell proliferation
- In mice treated with azoxymethane, CBD
  1 mg/kg decreased aberrant crypt foci, polyps and tumor formation
- At non-cytotoxic concentration, CBD anti-proliferative vs colorectal cancer cell lines

Aviello et al, J Mol Med 2011

What About Cannabis Oil?

- Tommy Chong claims he will beat cancer using hemp oil
- In colorectal cancer cell lines, CBD
  - Protected DNA from oxidative damage
  - Increased endocannabinoid levels
  - Reduced cell proliferation
- In mice treated with azoxymethane, CBD
  1 mg/kg decreased aberrant crypt foci, polyps and tumor formation
- At non-cytotoxic concentration, CBD anti-proliferative vs colorectal cancer cell lines

History Of Medicine

- 2000 B.C. - Here, eat this root.
- 1000 A.D. - That root is heathen. Here, say this prayer.
- 1850 A.D. - That prayer is superstition. Here, drink this potion.
- 1940 A.D. - That potion is snake oil. Here, swallow this pill.
- 1985 A.D. - That pill is ineffective. Here, take this antibiotic.
- 2000 A.D. - That antibiotic is artificial. Here, eat this root.
INTEGRATIVE ONCOLOGY

Daniel Vicario, M.D., ABHIM
April 2013

INTEGRATION = COLLABORATION

- Patient centered
- Empowerment
- Hope
- Menu of options
- Team work

Cancer statistics

- All cancers:
  - 1.3 million diagnosed a year: 3500 a day
  - 565,000 die every year: 1500 a day
  - 1 of every 4 deaths
- Lifetime probability of developing cancer
  - 1 in 3 women. 1 in 2 men.

Advances in Medical Oncology

- Improved medicines (healing meds)
- Monoclonal antibodies
  - Rituxan, Herceptin, Avastin
- Targeted molecular therapies
  - Imatinib (gleevec), erlotinib, sunitinib
- Anti-angiogenic agents
  - Avastin (VEGF receptor inhibitor)
  - Thalidomide, Revlimid
- Immunotherapy. Vaccines

Advances (cont)

- Apoptotic compounds
- Symptom management
- Stem cells
- Genomic medicine
- Chemosensitivity and resistance Assays
- Molecular profiling
- Epigenetics (turning genes on and off)
Integrative Medicine

Emerging medical specialty that incorporates
• Art and Science of caring for the whole person - body, mind, spirit - to treat and prevent disease
• Empowering patients to create a condition of optimal health, wellness and Healing
• Incorporating and Integrating EVIDENCE BASED natural therapies, complementary healing disciplines and modalities in the care of patients and caregivers

INTEGRATIVE MEDICINE


DANIEL VICARIO, M.D. (1998)

Integrative Medicine Programs in San Diego
• UCSD
• Sharp Healthcare
• Kaiser Permanente
• Samuei Institute: Wayne Jonas, M.D.; Shamini Jain, Ph.D.
• Scripps Center for Integrative Medicine
  ✓ Mimi Guarneri, M.D.; Robert Bonakdar, M.D.; David Leopold, M.D.
• Naturopathic Medicine: Bastyr University
• SDCRI: San Diego Cancer Research Institute

UCSD Center for Integrative Medicine (CIM)

Integrative Medicine
• Traditional Chinese Medicine (TCM)
  ✓ Kim Taylor; Aaron Cook; PCOM: Pacific College of Oriental Medicine
• Ayurvedic Medicine: Drs. Deepak Chopra and David Simon
  ✓ Valencia Porter, M.D.; Sheila Patel, M.D.; Chopra Center Team
• Native American Medicine
• Tibetan Medicine
• Other Ancient Healing Traditions
  ✓ Egypt, Greece, Shamans, etc.
**Integrative Oncology**

- Evolving specialty in Oncology
- Established Society of Integrative Oncology (SIO)
- Patient centered. Focuses on Health, Wellness and supporting the Healing journey of cancer patients
- Very much desired and requested by patients, family members, cancer centers staff and society at large
- Caring for the caregivers (nurses, doctors, all staff)
- Maintaining an *optimal* healing environment for patients, their loved ones, caretakers, nurses, doctors and all staff

**Integrative Medicine/Oncology Program in North County**

- Created in 1995. At SDCC. Under same roof
- First modalities: support groups, massage, acupuncture, nutrition
- San Diego Cancer Research Institute (SDCRI):
  - Non-profit created in 2000: [www.sdcri.org](http://www.sdcri.org)
- Volunteers: devoted experienced practitioners of the many healing arts who have successful practice
- Most services offered for free; open to all patients
- Community based Integrative program
- Up to 50 volunteers at one time
- Coordinator: Mary Hollander, R.N.

**Complementary Modalities**

- Life style changes. Prevention
- Nutrition:
  - Classes and groups at SDCC; Moores Cancer Center
  - Dr. Gordon Saxe and Lauray MacElhern
- Gentle and aerobic exercise
- Yoga
- Symptom management. Palliative care:
  - Lynette Cederquist, M.D.; William Mitchell, M.D.; Eric Roeland, M.D.
- Rehabilitation Medicine
- Aromatherapy
- Homeopathic Medicine (especially for symptoms)

**Botanicals and dietary supplements**

- TNTC (too numerous to count)
- Potential risks and side effects
- Some may counteract with medicines
- Several herbs have powerful
  - anti-inflammatory
  - antineoplastic properties
- Herbal Medicine
- Traditional Chinese Medicine (TCM)
- Ayurvedic Medicine
- Naturopathic Medicine
Botanicals and dietary supplements (cont)

- Vitamin D3
- Alpha Lipoic Acid
  - Prevention and treatment of Neuropathy. Dose: 300 mg bid
- Tea Tree oil (nail changes)
- Aloe vera (skin and GI)
- Probiotics
- Omega-3 fatty acids
  - Curcumin (turmeric)
- Melatonin
- Many, many others. This is a brief summary

Massage therapy in cancer

- Efficacy
- Is it safe in cancer? Yes (in the right hands)
- Special Training: Teri Polley-Michea, R.N.
- Indications
  - Specific awareness in cancer
    - Risk of infections
    - Risk of DVT (clots)
    - Risk of fractures (bone metastasis)
    - Skin sensitivity (from radiation and/or chemo)

TCM and Acupuncture

- Whole body treatment. Body-mind-energy
- Acupuncture points. Meridians
- Chi (Qi: vital energy)
- Regulate body functions
  - Improve symptoms caused by cancer
  - Mitigate side effects, attenuate toxicity
  - Enhance therapeutic effect of medical treatments
- Recovery. Restore health, immunity and well being

Acupuncture/Acupressure

- Pain
- Xerostomia after Head and Neck Radiation Rx
- Nausea, vomiting
- Anorexia
- Vasomotor symptoms (hot flashes)
- Neuropathy
- Fatigue
- Weight loss
- Stress, fear, anxiety, depression
- Promotes sense of well-being and improves QOL
Acupuncture for Cancer-Related Fatigue in Patients With Breast Cancer: A Pragmatic Randomized Controlled Trial

Alexander Ahmed, Alex Hardy, Jennifer Douglas, Steven Mulliken, Mark Slivka, Jennifer Shade-Brown, Jennifer Price, Michelle Price, Michelle Price

ABSTRACT

Purpose

We aimed to assess the effectiveness of acupuncture for cancer-related fatigue (CRF) in patients with breast cancer.

Methods

This single-center, parallel-group, pragmatic randomized controlled trial comparing acupuncture with enhanced usual care (EUC) therapy was conducted in a breast cancer center. Patients who had at least two sessions of acupuncture within the preceding 6 months were randomized to EUC or acupuncture plus enhanced usual care (EUC+). The primary endpoint was the change in the Functional Assessment of Cancer Therapy-Fatigue Scale (FACT-F) total score from baseline to 12 weeks. Secondary endpoints were the FACT-F subscales and Fatigue-specific endpoints.

Results

Data were obtained from 122 participants. Acupuncture was as effective as EUC in improving the FACT-F total score (P = 0.64). However, patients in the EUC+ group had significantly lower scores on the FACT-F subscales (P < 0.05). The EUC+ group also had significantly lower scores on the Fatigue-specific endpoints (P < 0.05).

Conclusion

Acupuncture is an effective intervention for managing the symptoms of CRF and improving quality of life.


Empowerment Techniques (MBM)

- Visualization
- Contemplation
- Mindfulness:
  - Diana Shumsky
  - Dr. Steven Hickman at UCSD
- Guided Imagery. Self Hypnosis
- Biofeedback
- Meditation
- Prayer
- Special Mention: Wayne Dyer, Ph.D.; Carl Simonton, M.D.; Jose Silva; SRF

Support Groups

- Patients
- Caregivers. Caretakers
- Children
- Bereavement
- Social Services. Counselors. Psychologists
- Psychosocial Oncology:
  - Wayne Bardwell, Ph.D. at MCC
  - Paul Brenner, M.D., Ph.D. at U.C. SDCC
- APOS: American Psychosocial Oncology Society
- Thrivers Network: Dani Grady
- O. Carl Simonton, M.D.
Biofield therapies (Energy Medicine)

- Healing Touch
- Therapeutic Touch
- Hands on Healing
- Reiki
- Qi gong
- Tai Chi
- Energy Healing: several different names, techniques and practices
- Research: Paul Mills, Ph.D.; Shamini Jain, Ph.D.

Blanca Noel:
Cranio-sacral, Energy Medicine, Laughter Yoga

Qi gong
Fay McGrew

Art therapy
Alessandra Colfi, Ph.D.
Complementary Modalities (cont)

- Osteopathic Medicine
  - Dr. Mike Kurisu, D.O.
- Pet therapy:
  - Grace with Norma Spencer
  - Tassi with Suzanne Hulett
  - Isabella with Teri Polley
- Music and Sound Therapy
- Humor. Laughter Yoga
- Journaling
- QOL: Quality of Life
- Spirituality and Cancer
- Power of Prayer

Appreciation of SDCRI Volunteers

- Yoga: Daniela Caniglia
- Massage: Raquel Ramos, Maureen Miner, Cathy Ziska, Yukari Kono, Angelic Rendon, Dana Wylie
- Acupuncture: Kim Taylor, Dodie Hemingway, Joe Voss, Mary Fong
- Mindfulness: Diana Shimkus
- Art: Alessandra Colli, Juli Shelton
- Support Groups: Dr. Paul Brenner
- Qi gong: Fay McGrew
- Biofield Therapies (see separate slide)
- Pet therapy (see separate slide)

Integrative Modalities

- Immune modulating
- Anti-inflammatory
- Endorphin producing
- Hormone regulating
- Antioxidant
- Induce apoptosis
- Antiangiogenesis
- Epigenetic effect
- Restore balance and harmony

- Goal is Synergy: improve medical Rx outcomes
- Often results can be "practitioner dependent"

Role of an Integrative Oncologist

- Reviewing Integrative programs and resources.
- Support cancer patients put together integrative treatment plans during and after conventional cancer treatment
- Advising patients about benefits and possible risks of all options and treatment modalities
- Help patients embrace chemotherapy and conventional medical recommendations
- Support oncologists, nurses and cancer center staff
- Answering many questions regarding integration
Future of Integrative Oncology at UCSD

- Help expand current Moores programs, several introduced by Dr. Wayne Bardwell. Further collaboration
- Pilot acupuncture program at Moores
- Research collaboration within Moores, UCSD CIM and other UCSD departments
- Continue integrating other modalities: yoga, massage, Biofield therapies (energy medicine), and many other
- Embracing Integrative Oncology as a Specialty
- Educational Programs
- Collaboration with other programs and Institutions

What can we tell Patients

- Honor all your feelings
- Trust your powerful inner wisdom, intuition.
- Be with those who make you feel joy, peace
- Do not compare yourself with others
- Accept help: "You are always giving"
- Message of hope: for any condition considered "incurable" at this time, an answer may be around the corner
- Spontaneous remissions
- Healing and Curing

Taking care of ourselves

- Patients as Teachers
- Crying with staff and patients. Grieving
- Dealing with stress, helplessness, overwhelm, burnout, "compassion fatigue"
- Challenges in the medical environment
- Embracing uncertainty
- Accepting cycle of life and death
  - Important Role of Hospice Team (poem)

How to help someone with cancer

- You know how!
- Peace, Harmony, Aligned. Congruence
- Being present
- Intention. Compassion
- Respecting beliefs and cultural differences
- Non verbal: embracing uncertainty, hope, faith, strength
- Alchemist: transmute disease into ease (St. Francis prayer)
- Entrainment, limbic resonance, mirror neurons

Summary: Cancer experience

- Meditation. Inner peace. Harmony
- Nutrition. Hydration. Breathe our water, food, supplements, medicines
- Exercise: gentle, aerobic, yoga, breathing exercises
- Good sleep. Honor body's need to rest
- Embrace all wisdoms: medicine & all healing modalities
- Practice healing disciplines regularly (one or a few)
- Add tools to the Toolbox: techniques, experiences, lessons
- Feel in control. Empowered
- Balance. Avoid extremes
- Love and Connection. Contribution. Collaboration
“The good physician treats the disease; the greater physician treats the patient who has the disease”
Sir William Osler, 1849-1919

“It is more important to know what sort of person has a disease than to know what sort of disease a person has”

“Make a habit of two things: to help; or at least to do no harm”

“Let food be thy medicine; thy medicine shall be thy food”
Hippocrates, 460-370 BC

“Make a gift of your life and lift all mankind by being kind, considerate, forgiving, and compassionate at all times, in all places, and under all conditions, with everyone as well as yourself. This is the greatest gift anyone can give.”
— David Hawkins, M.D., Ph.D.; Psychiatrist, physician, spiritual teacher, lecturer

Inspiration

“There is a voice in the Universe urging us to remember our purpose for being on this great Earth. This is the voice of inspiration, which is within each and every one of us.”

DR. WAYNE W. DYER

Recognition and Gratitude

• Honoring cancer Patients and their families. Caregivers and Caretakers
• Professionals and practitioners of all the healing arts caring for cancer patients (especially Angel Nurses)
• Researchers; Volunteers
• Staff, Nurses and Colleagues of the U.C. San Diego Cancer Center
• Volunteers at the San Diego Cancer Research Institute (SDCRI)
• UCSD Center for Integrative Medicine: Dr. Rusty Kallenberg, Dr. Ellen Beck, Dr. Michael Kurisu, Dr. Gordon Saxe, Lauren Mesilhem, Dr. Paul Mills, etc
• Moores Cancer Center: Dr. Lippman; Dr. Parker; Christy Wenger; Lori Johnson, R.N.; All Nurses, Doctors and Staff who are supporting Integration
• UCSD Leadership: Tom McAfee, M.D.; Dr. David Brenner (Dean)
• Medicine of the Soul: Dr. Paul Brenner, Mary Hollander, Blanca Noel, Dr. Jesus Valverde
• UCSD HI-Med
• My Family and Friends.
The Role of Expressive Arts Therapies, Creative Expression, and the Healing Arts in Working with People and Families with Cancer

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Goals
- Recognize the impact of creating opportunities for creative expression in the lives of cancer patients and their families: High touch/high impact approach
- Empower clinicians, individuals, families, and administrators to integrate these approaches into your day to day lives, clinical practice, and health systems

Outline
- Introductions
- Approaches
  - Describe programs and examples
- Evidence Base
  - Review some of the evidence re effectiveness and provide sources
- What You Can Do

Modalities of Creative Expression
- Art
- Music
- Movement: Yoga, Tai chi, Dance, Chi Gong
- Writing
- Drama/Play
- Combined
- Sources of Strength: Individualized

Art and Creative Expression for Whom?
- Patients/ Clients
- Families of Origin
- Friends/Families of Choice
- Staff, clinicians, caregivers, physicians
- Physical Environment

Examples
- Working with the dying
- Programs in Hospice
- As a physician, clinician, therapist

For example:
- Five Books of Grandma
- Letters
Examples: Being with Friends and Families
- Bring pencils, markers, crayons
- Just sitting and drawing together
- A way to be together

Who can benefit and how
- Patients:
  - Adults: reduce depression, anxiety, increase coping skills
- Children: reduces anxiety, depression, fear, boredom, Entry for other approaches

Families
- Way to communicate and interact
- Creation of memories
- Address depression, anxiety
- Explore ways that families can do art together

Health professionals, students, staff
- Renewal
- Relaxation
- Emotional expression
- Insight
- Can participate with clients and/or separately

Physical Environment
- Patient’s room
- Meditation and Renewal Spaces
- Participatory Art spaces, Studio
- Gardens, murals
- Same concept of empowerment: Create environments where people take charge of their lives and achieve joy and wellbeing

Sources of Strength Prescriptions
- Differ for each person
- Whatever over the years has nourished your spirit or given you strength
- Be specific and realistic
- E.g. Listen to music you enjoy twice a day while cooking
- Write in journal three times a week
- Draw, Paint, Sing, Dance, Play Music, Cook
- Take a moment
A clinician can encourage expression as part of the healing process—some approaches:
- Paint feelings
- Talisman: Words or names that are sources of strength
- Collage of past present and future: hopes and dreams for yourself, your family, and the world
- Wisdom stick: decorate a branch of a tree or a dowel, with beads, ribbons, symbols that are sources of strength

Writing, Journaling, Interviewing, Role of Narrative:
- Recording or Writing an interview
- My Grandmother’s Story
- The Granddad TV show
- Telling Stories, sharing stories, especially stories from the person’s life
- Journaling

Some principles:
- Different types of media allow for a greater sense of freedom on the part of the client; e.g., thin colored pencil vs clay
- Process more important than product
- Just get started…provide colorful items, safe space, perhaps music, relaxation and pleasant experience
- Rules of the Artist: Come from the heart, no good or bad work, don’t overthink it, plenty of supplies if you want to restart

As clinicians, we are often in a position to suggest forms of creative expression as part of the healing process.

Creative Expression can be a way of helping people look at their fears and addressing them:
- Example

Core philosophy:
- Person-centered
- Empowerment
- Humanistic
- Trans-disciplinary
- Community as Teacher
- Taught, modeled, and expected throughout all activities
Esperanza Empowerment Group
Member 3 years

“When I first came to the group, I was carrying a lot, and I let everything out. I cried a lot and since then, everybody in the group has helped me to think, to defend myself, to move forward without fear. Everything I hear here, I share with my family and they also are changing. I was in the hospital recently and they gave me a lot of support. I want this group to continue and want to invite a lot of people so that they also can listen and learn not to have fear and to move forward. This is my home and I want to share it with everybody.”

Irma Empowerment group member
4 years

…”Before coming to this group, I did not know how to control my temper and I did not know how to speak with my children or my husband. Now I feel like a different person. I know how to control my temper. I know how to speak to my children. Now I know how to get along with myself better. Before, I didn’t value myself. I didn’t take time for myself. I feel much better about myself. Thanks to all of you…For me, this group is like a family, something beautiful that happened in my life, this experience, this support…Ojalá I wish I can continue to come and to share.”

Resources: Bibliography
Art Therapy Outcomes Bibliography
Revised and Updated – August 17, 2012
American Art Therapy Association
Research Committee

Evidence Base: Art Therapy Systematic Review

- What research evidence is there for the use of art therapy in the management of symptoms in adults with cancer? A systematic review
- Conclusion:
  - Used at all stages of cancer
  - Research still in its infancy

Evidence Base: An overview of art therapy interventions for cancer patients and the results of research

- Six papers: Decrease in anxiety and depression
- Three papers: Increase in quality of life.
- Four qualitative papers: Positive effects on personal growth, coping, new forms of self-expression, and social interaction.
- Three qualitative papers assess participants’ mechanisms for coping with their disease.


Evidence Base: Art Therapy

- Functional magnetic resonance imaging measured changes in cerebral blood flow (CBF) associated with the Mindfulness-based Art Therapy (MBAT) program and correlated changes to stress and anxiety in women with breast cancer
- Results: MBAT program was associated with significant changes in CBF, which correlated with decreased anxiety over an 8-week period.

Stress and Health, 2012; 28 (5): 397
Daniel A. Monti, Kathryn M. Kash, et al

Evidence Base: Dance/movement Therapies

- Dance/movement therapy for improving psychological and physical outcomes in cancer patients

Conclusions:
No effect on body image
May improve QOL (one study)
Limited studies prevent conclusions

Evidence Base: Music Therapy

- Cochrane Database Syst Rev. 2011 Aug 10;(8)
Music interventions for improving psychological and physical outcomes in cancer patients.

CONCLUSIONS: This systematic review (30 studies) indicates that music interventions may have beneficial effects on anxiety, pain, mood, and QoL in people with cancer. Furthermore, music may have a small effect on heart rate, respiratory rate, and blood pressure. Most trials were at high risk of bias and, therefore, these results need to be interpreted with caution.

Evidence Base: Creative Expression activities

- High touch, high impact
Start small, build up over time
Person-centered
Gandhi, Marley, Rumi, Chavez, Hillel
Rule of Life

Effect of Music Therapy on Depression, Anxiety, and duration of stay in breast cancer patients after radical mastectomy

- Randomized Clinical Trial—showed Reduction in State Anxiety, Depression, and Length of Stay in Breast Cancer Patients after radical Mastectomy for patients receiving nurse-provided music therapy during hospital stay.

Zhou KN, Li XM, Yan H, Dang SN, Wang DL.
Li XM, Zhou KN, Yan H, Wang DL, Zhang YP.

Conclusion:
Creative Expression activities:
High touch, high impact
Start small, build up over time
Person-centered
Gandhi, Marley, Rumi, Chavez, Hillel
Rule of Life
It Takes A Village . . .
to Cure A Cancer

The Role of Community in Cancer Care

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&

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THE CONVENTIONAL MODEL

Disease

Eradication

Surgery, Radiation, and Chemotherapy

THE INTEGRATIVE MODEL

Patient

Education & support in whole person health

Treatment

A PATIENT-CENTERED VILLAGE

Navigator Programs

- Types of programs:
  + Community-based
  + Hospital-based

- What they provide:
  + Help for patients and families
  + Support for healthcare providers
**CANCER NAVIGATOR USA**

An information exchange to include resources, education, and research:
- Web portal to cancer resource links
- Helplines and outreach
- Healthcare collaborations
- History of the San Diego Program

**TRANSFORMING THE METAPHOR**

The “War on Cancer”  
(to defeat a disease)

vs.

“It Takes a Village”  
(to heal a patient)

Cancer as a gang . . .

Family therapy for the cancer cell . . .