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| 001a. cover sheet        | testimony of Michio Kushi to WHCCAMP (partial) (1 page) | 03/27/2001 | b(6)        |
| 001b. testimony          | Michio Kushi (partial) (1 page)                         | 03/27/2001 | b(6)        |
| 001c. bio                | Michio Kushi (partial) (1 page)                         | 03/26/2001 | b(6)        |

### COLLECTION:

Federal Records

White House Commission on Complementary and Alternative Medicine Policy [WHCCAMP]

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### FOLDER TITLE:

WHCCAM Meeting Testimony, March 26, 2001 [5]

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### RESTRICTION CODES

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# **Report to the White House Commission on Complementary and Alternative Medicine Policy**

## **Corporate Wellness *With Special Emphasis on Aspects Related to CAM***

Cathy Moxley, M.A.

Manager, Health and Wellness, Marriott International, Inc.

March 27, 2001

### ***Introduction***

Today, over 80% of America's businesses with 50 or more employees have some form of health promotion program. As the members of this commission are well aware, more than 50% of all deaths in the U.S. are caused by lifestyle related problems, including smoking, sedentary lifestyle, poor nutrition, and obesity. Because of the large percentage of time most Americans spend at the workplace, what better place to target health promotion efforts and information dissemination. In addition to benefit to the individual, corporate America also has much to gain from investing in employee health:

#### **Healthcare Cost Economics**

- illness avoidance
- health consumerism
- chronic disease management

#### **Productivity**

- absenteeism
- injury/disability
- turnover
- morale

#### **Image**

- corporate/community citizen, loyalty
- recruitment, competitive advantage

### ***Marriott International's Wellness Program***

In addition to the reasons listed above, health promotion is consistent with Marriott's long-standing philosophy of "take care of the associate and they'll take care of the customer" and Marriott's Human Resources efforts to be a preferred employer.

### ***Four Departments Serve the Health and Wellness Needs of Marriott HQ Associates***

- The *Wellness & You!* Program –comprehensive wellness programs
- A Full Service Fitness Facility including Group Exercise Classes, Fitness Testing, Personal Training, Sports Leagues, etc.
- Employee Assistance Program – LCSW for mental health and other counseling issues
- Associate Health Services - Nurses for injuries and illness management

### ***Marriott's Past and Present Wellness Initiatives***

- Health Risk Appraisals
- Follow-Up Counseling for High Risk Associates
- Health Screenings (i.e. blood pressure, cholesterol, bone density, skin cancer)
- Monthly Wellness Newsletter
- Monthly Wellness Theme with corresponding programs
- Lunch-time Seminars
- Smoking Cessation Programs
- Nutrition Counseling
- Weight Management Programs
- Stress Management Programs
- Back Care Programs
- Lactation Program
- Health Fairs
- Wellness Resource Center
- Walking Club
- Incentive Programs
- Ergonomic Programs
- Flu Shots
- Self-Care and Travel Health Information
- Wellness Advisory Council of Senior Management
- Volunteer "Wellness Action Team" committee

### ***Marriott's Past and Present Wellness Programs Related to CAM***

- Seated Massage Program
- Yoga classes
- Tai Chi Classes
- Lunchtime Seminars on various CAM topics
- Exhibits at Annual Health Fair on CAM topics, such as Chiropractics, the Acupuncture Institute, Magnet Therapy, Biofeedback
- Newsletter Articles on CAM topics

### ***Most Common CAM Vendors***

- Chiropractors
- Nutritional Products

### ***Corporate Wellness Emerging or Continuing Prominent Issues***

- Obesity
- Diabetes
- Mental Health
- Heart Disease
- Escalation of the Health Care Costs, especially Pharmaceuticals
- The inclusion of health promotion into the medical and business mainstream, such as making health promotion procedures reimbursable.
- Increasing allocations for health promotion research to better reflect the huge burden of lifestyle on disease and death in the United States.

### ***Corporate Wellness Obstacles***

- While there is much research supporting the health and financial impact of health promotion, in difficult economic times, wellness programs may be among the first to be cut when difficult budget decisions must be made.
- Senior management support is crucial. Corporate politics can be a factor in the growth or and/or decline of wellness programs.
- Many of the benefits of corporate wellness programs are long-term, while an individual's employment with a particular company may be short-term.

### ***Opportunities Specific to CAM***

- Increased methods for standardizing, regulating or credentialing providers of CAM to improve confidence in vendor and program selection.

### ***Obstacles Specific to CAM***

- The general public's interest and hunger for information related to CAM topics obviously extends to our sub-population. And, a multitude of programs, vendors, and providers target corporations, extending along a large continuum of credibility. The corporate wellness professional may sometimes have difficulty making decisions regarding the credibility of a CAM topic or particular provider, given the constantly changing status of research. And because providing information or programs through the workplace can be construed as the "Company" endorsing a concept, whether explicitly or implicitly, this responsibility makes it delicate work to navigate through the credibility and appropriateness issues of what can or should be offered through the workplace. Ultimately, we strive to strike a balance between offering well-developed programs on well-accepted modalities and concepts and periodic exposure and education on less-proven topics.
- Another obstacle is finding the "right" providers – ones that are credible, affordable, available on the days/times we need, geographically near-by, and able to fit into the corporate environment.

## **Resources**

- The American Journal of Health Promotion (<http://www.healthpromotionjournal.com>)
- The Association for Worksite Health Promotion (<http://www.awhp.org>)
- The Wellness Councils of America (<http://www.welcoa.org>)
- The National Wellness Association (<http://nationalwellness.org>)

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# Nutrition, CAM and Wellness: Achieving Optimal Functioning

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## Overview

1. Health Promotion vs. Disease Prevention and Treatment. The acute care model is not effective for chronic illness.
2. Nutritional Intelligence is a key element of health creation.
3. What are the educational, research and public policy imperatives that derive from this necessary shift from a disease focused health care system to a health-based model?

## The Nature of Health Promotion vs. Disease Prevention and Treatment

Consider this for a moment. How many of us were born with an operating manual strapped to our thigh, an instruction book for the care and well being of our bodies and souls? How many of us know what will make our bodies function optimally, what will give us energy, vitality and longevity? How many of us know what will make us thrive based on our gender, race or age? How many of us truly know what elements of our behavior, habits, diet, exercise, social relationships or spiritual beliefs impede or support our health?

The attainment of this knowledge for each individual is the promise of the revolution in medicine. The revolution spreads through the halls of the laboratory, the hospital wards, the clinic and a new generation of health centers and health resorts. In the pages of our medical journals a new story is being told. The body is one wholly functioning organism. To thrive it must receive the basic elements that give life – essential amino acids, essential fatty acids, specific carbohydrates, fiber, vitamins, minerals, accessory or conditionally essential nutrients, physical and intellectual activity, air, water, light, love, touch and rhythm. Those things that impede our vitality must be identified – anti-nutrients (trans fats, refined sugars, unnecessary food additives, hormones, antibiotic and petrochemical and endocrine disrupting residues in our food supply), inactivity, excessive stress, environmental toxins, infections, isolation, lack of community and more.

revolution, the consumer demand for a new kind of care, and over burdened physicians must give way to a new road map, a compass for navigating the task ahead of us.

My perspective emerges from five years of intensive work and study, testing and treatment within a unique setting -- a health resort. It is a place where people come to promote health and wellness, to work with over 60 health care practitioners – doctors, nurses, nutritionists, exercise physiologists, physical therapists, behavioral therapists, movement therapists, practitioners of homeopathy, traditional Chinese medicine and Aryurveda. Those practitioners interface with hundreds of massage therapists, yoga teachers, qi gong and tai qi teachers, fitness trainers and others. Over 50,000 people per year come through our doors to seek what should be available to a larger population. One quarter of Americans now seek treatment at spas. This is a consumer driven revolution.

Three forces of change in our healthcare system were identified in Price Waterhouse Coopers Report Healthcast: 2010. The first force is the consumer driven shift in demand for a new type of health care and health care delivery system. The second force is the electronic spread of health information and the third is the revolution in genomics and biotechnology that will shift the healthcare system from cure to prevention.

How must we deal with the human and economic burden of nearly 100 million chronically ill people when our health care system is focused on the acutely ill? A recent JAMA article reviewed the status of US Health. “Of 13 countries in a recent comparison, the United States ranks an average of 12<sup>th</sup> (second from the bottom) for 16 available health indicators.” The application of an acute care model to chronic illness creates an enormous burden of suffering (accounting for 225,000 deaths per year or the third leading cause of death after heart disease and cancer) and an economic disaster of \$77 billion in extra costs from the adverse effects of outpatient care alone. (JAMA, 2000;284). We must ask why. We must shift from simply treating disease, to defining, measuring and creating health. (JAMA, 1999;281:1030-1033). We in fact must shift away from the transitional distinctions between complementary, alternative and allopathic medicine to just plain good patient-centered medicine. As William Osler instructed us, “it is more important to know the person who has the disease, than the disease that the person has.”

EO Wilson, the Harvard sociobiologist, describes a new ground for the evolution of human knowledge based on “Consilience: The Unity of Knowledge”. He outlines the progress from reductionism to synthesis in all disciplines, from the sciences to the humanities. Emerging from the advances in molecular biology, nutritional biochemistry, genomics and proteomics is a new vision – it is the body’s little instruction book. It defines health, not disease. A model based on health will supplant the model of health care based on diseases.

## **Nutritional Intelligence**

### **Optimizing Functioning/Fitting into your Genes**

Our public policy and government regulations must reflect “Nutritional Intelligence”, a concept that has grown from our work at Canyon Ranch and was given birth by Kathie Swift, our nutrition director.

A local Berkshire educational center, a local school for children who are wards of the state has a clear written nutrition policy. Children less than 12 can have a cheeseburger, small fries and a small coke, and children over 12 can have two cheeseburgers, a large fries and a large coke. We wouldn't feed French fries to our dog. Why do we feed them to our children? The top two vegetables eaten by children are French fries and ketchup.

The USDA reported that the top nine foods eaten by Americans are:

1. Whole cow's milk
2. 2% milk
3. Processed American Cheese
4. White bread
5. White flour
6. White rolls
7. Refined sugar
8. Colas
9. Ground beef

Nutrition is a key foundation for health creation. Conversely, over consumptive under nutrition can cause severe disturbances to our health and accounts for the most of the morbidity and mortality in this country. Food must no longer be seen as simply calories to fuel the body, but information and instructions for the body to achieve health or to promote imbalance and disease. The genomic revolution is converging with the advances in nutrition to disclose the power of nutrient gene interactions. The Pima Indians of Arizona, extensively researched by the NIH, illustrate the power of nutrient-gene interactions in determining health. In one generation they have been transformed from a fit, vibrant, adapted community of desert dwellers to one of the most obese populations on the planet with a rate of diabetes of nearly 80% and a life expectancy of 46. Shifts away from essential fatty acid consumption toward trans fats, and the abundance of refined sugars and a cessation of their physically active life produced the gene expression phenotype of insulin resistance. Nutrition – amino acids, peptides, essential fatty acids, fiber rich carbohydrates, phytonutrients dense foods, vitamins, mineral and accessory nutrients – play a critical role in cell signal regulation, enzyme function, gene transcription, and post-translational modification of gene products --- all critical steps in creating the dynamic balance of physiology and biochemistry that support health.

From the small microcosm of our health care center, I have witnessed the power of nutrition to reverse diabetes, create sustainable weight loss, arrest or relieve chronic

inflammatory diseases including, arthritis, chronic allergy, sinusitis, eczema, food allergy and recurrent infections, reverse lipid disorders, improve cognitive function, relieve depression and anxiety, improve hormonal chaos experienced by women as PMS and menopausal symptoms, end decades of bowel dysfunction from IBS, and dramatically improve fibromyalgia and chronic fatigue. Even in the absence of disease nutrition has the power to improve vitality, function, energy and longevity when combined with improvements in lifestyle.

## **Implications for Healthcare Policy and Public Health: The Obstacles and the Imperatives**

### **The Obstacles**

What are the political, personal, economic and social obstacles to implement the scientific advances of the last half-century connecting nutrition and health? Just as Eisenhower in his final days implored, “beware the military industrial complex”, I suggest that the “medical-industrial complex” dangerously impacts our health. It is a loosely defined force of commercial food producers, fast food purveyors, pharmaceutical corporations, health care institutions and the media that unwittingly (or perhaps consciously), contribute to hundreds of thousands of premature deaths and billion’s of dollars of preventable health care expenditures. Dr. Willet “estimates conservatively that 30,000 premature deaths per year in the United States are attributable to consumption of trans fatty acids. Because there are no known nutritional benefits of trans fatty acids and clear adverse metabolic consequences exist, prudent public policy would dictate that their consumption be minimized and that information on trans fatty acid content of foods be available to consumers.” *Am J Clin Nutr* 1997;66(suppl):1006S-10S. The obesity and diabetes epidemic is perfectly correlated to the increased consumption of refined sugars that are freely available. The average boy has 36 teaspoons of sugar per day, the average girl 24. The average American consumes half a pound of sugar per day, or 150 pounds per year. The science exists to support labeling our food supply with health warnings, just as we label cigarettes. The economic forces impeding the clear flow of knowledge and science are larger than the tobacco lobby.

In addition to the “medical-industrial complex”, a natural resistance to change exists within the medical community. An entire shift in medical education, practice and belief is needed to shift from a disease based model, to a health based model, from the pharmacologic management of disease to methods that uncover the underlying cause of illness and support the body’s optimal function and enhance the healing system. How do we encourage practitioners to implement advances in science such as nutritional modulation of cytokines? A recent review in the *New England Journal of Medicine* highlighted key elements of this approach. The strategy of creating cytokine balance emphasized preventing gut derived endotoxemia, inhibiting TNF alpha activity, inhibiting inflammation, decreasing the production of reactive oxygen species; reduction of liver lipids and improving insulin sensitivity supported the use of “probiotics”, herbs, vitamins, “prodrugs” to boost glutathione. (*NEJM* 2000; 343: 1467-1476) The food we

eat, the substances we ingest, and the phytonutrients and other “pro” substances available to the practitioner today can affect these processes and are supported by peer-reviewed research. There are 500,000 references in the NIH database on dietary supplements. The science of medicine must become the practice of medicine, what we know must become what we do.

The limitations of randomized controlled trials to answer the questions posed by chronic illness have recently come to the forefront. (NEJM). We cannot create a patient centered research agenda as long we focus solely on disease. We must look collectively at the strategies for measuring, and creating new tools to measure the deviations from health, the imbalances and disturbances in physiological and molecular function, and the distortions of cell signaling that precede clinical illness. The single drug, single disease model does not speak to the complexity of biologic function that creates health.

We must consider “prodrugs” rather than “anti-drugs” and study how they can be used to restore normal function in the key systems of the body. For example, insulin sensitivity can be modified by the new class of drugs, the thiozolidinediones, that act on a nuclear receptor (PPAR alpha and gamma) and affect gene transcription. Insulin sensitivity can instead be regulated by nutritional modulation. Trans fatty acids act as analog inhibitors of PPAR, while conjugated linoleic acid (CLA) and the omega three fatty acids EPA and DHA as well as antioxidants act as PPAR agonists. Cell membrane physiology and insulin receptor conformation is also directly affected by the essential fatty acids that form the phospholipid cell membrane, as well as specific nutrients including vitamin E, alpha lipoic acid and vanadium. Creatine increases GLUT4 receptors and improves glucose metabolism. Dietary fiber and slowly digested starches modulate intestinal glucose uptake and reduce peripheral insulin production. Strength training and aerobic conditioning also improve insulin sensitivity. From this brief and incomplete description of the effect of diet, exercise, nutrients, essential fatty acids and “prodrugs”, it is clear that globally enhancing function can be collectively more potent pharmacologic therapy. It is estimated that 50% of hypertensive patients have insulin resistance as the causative factor. Certain classes of anti-hypertensives (beta- blockers) actually exacerbate the underlying pathology while lowering blood pressure (NEJM). The impediments to integration of this model in health care delivery include insufficient or inappropriate allocation of resources for education of practitioners and the public. Compounding this lack of education is the frequent misrepresentation or misinterpretation of medical information by the media and the influence of marketing by the pharmaceutical and food industries. (NEJM)

## **Implications for Healthcare Policy**

### **Education of Practitioners**

New and innovative strategies must be developed that grow from a cohesive understanding of health, from a synthesis born from many disciplines and fields integrated into a fuller understanding of optimal functioning. The goal of these strategies must be to equip the practitioner, the patient and the media with accurate and clear knowledge of how to care for the human body, how to enhance the web of life to maximize health and vitality.

The educational imperatives before us include the development of a focused medical school and postgraduate curriculum on nutritional and lifestyle management of chronic illness and the creation of health. This must include the principles forming a new theoretical foundation for medical care outlined in the paper by Dr. Jeffrey Bland. These emerging principles include 1) biochemical individuality based on genetic and environmental uniqueness or functional genomics, 2) a patient-centered versus disease centered model, 3) an understanding of the dynamic interaction between the internal and external environment, 4) the complex relationships and connections among physiologic factors and 5) health as positive vitality, not merely the absence of disease.

Specific modules are needed on intake and assessment from a patient centered perspective to elucidate the antecedents, triggers, mediators and effects of illness. The teaching modules must include new laboratory diagnostic and functional measurements of health and imbalance focused on early intervention, non-pharmacological management of illness, use of pro-therapies including nutrition, dietary supplements, herbal therapies, exercise, stress management and environmental therapies. These educational imperatives must filter down to all the allied health professions to prevent a patchwork quilt of complementary therapies that have no cohesive framework for practice.

### **Education of Children**

Three of the most important things in life we do not learn in school: the care of our children, and relationships, the care of our finances, and the care of our bodies. Public schools provide the foundation for future life skills – this should include the way to properly feed, nourish and enhance the body and the mind throughout life, how to prevent future illness that we now know begins in childhood such as heart disease, cancer and osteoporosis. Schools can give the children we entrust to them the operating manual for their bodies.

### **Education of the Public**

Public health campaigns are required to highlight “Nutritional Intelligence” and to dispel myths and misconceptions about nutrition and health. Use of the media, television, Internet, the enrollment of modern sports and entertainment icons in the task of public education is crucial. We grew up believing that eggs cause heart disease, milk is nature’s perfect food, and margarine is better than butter. How long did it take for the government to recognize the dangers of smoking and adequately label cigarettes? Perhaps the bag of potato chips, or a dish of French fries, or a can of cola should have a warning label: “this product contains trans fats and sugars that can cause obesity, coronary artery disease, cancer and premature death.” How many decades was it clear that folate was critical to prevent heart disease, neural tube defects and cancer before public policy mandated its

addition to our food supply? How many people even today know that folate from food is not absorbed as well as from supplements, or even how much or why they should take extra folate? How long must we wait to synthesize, and deliver the science of health, the operating manual to the public? How many billions of dollars must be spent unnecessarily, and how many lives lost before we act in concert as a scientific community and government?

### **Research Imperatives**

Research must be focused on asking the right questions, independent of economic gain. Allocation of resources to identify cost-effective therapies, global management strategies for chronic health conditions, new systems of health care delivery and outcome-based research are essential to advance knowledge that grows from basic principles. New and innovative nutritional and lifestyle approaches, such as the model developed by Dr. Ornish for heart disease reversal must be applied to other chronic illnesses and studied.

Think tanks and policy centers of clinicians and scientists and policy makers must be convened and funded to synthesize the plethora of data on health, nutrition and lifestyle implications for creating a healthy population. There is often an enormous chasm between information and knowledge. It is time to bring together experts from different fields, from the laboratory and the clinic to create clearer distinctions and a new synthesis that will be the body's little instruction book.

### **New Models of Health Care Delivery**

The days of Norman Rockwell's America have passed. The old doctor patient office visit is today an apparition of what it once was, and though the form remains, it cannot contain the exigencies of today's medical and economic realities. We must explore, define and create new models of health care delivery. These might include group patient visits where physicians can educate 20 people for one hour with common problems, teach self-care, nutrition and provide the tools necessary to reduce dependence on the health care system and pharmacologic treatment of illness. New forms of health centers are emerging such as the Continuum Center for Health and Healing in New York that may serve as model for integrated care. Support for local centers for fitness, nutrition education, cooking and self-care can be provided. Research proven methods for lifestyle modification and education can be employed within existing health care institutions. Reimbursement based on disease or ICD-9 and CPT coding must be revised to reflect the cost savings of a shift from acute or terminal care to early assessment and intervention in the prevention of chronic disease, the enhancement of function and the creation of optimal health.

Health resorts or "spas" can become a resource for education, health promotion and wellness. The European model of government funded six-week visits to health resorts should give us pause, and help us conceive a new type of "healthy vacation" where one is restored, renewed and given the tools to care for the body and mind.

The future of medicine lies in defining, measuring and creating health in individuals and populations, in providing each of us the operating manual for a healthy life. We have an

unparalleled opportunity to shift our health care system from one based on disease to one based on health and open the door to a new era in medicine.

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March 27, 2001

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The doctors of the future will prescribe no medicine, but will interest their patients in diet, the care of the human frame, and the cause and prevention of disease.

## **Thomas Edison**

Reductionism is the primary and essential activity of science. Also crucial are synthesis and integration, tempered by philosophical reflection on significance and value...To make any progress [researchers] must meditate on the hidden design and forces of the networks of causation."

## **E.O. Wilson, Consilience: The Unity of Knowledge**

The science of medicine is perhaps the most frequently cited case of increasing specialization seeming to follow inevitably from increasing knowledge, as new cures and better treatments for many diseases are discovered. But as medical biochemical research comes up with deeper explanations of disease processes (and healthy processes) in the body, understanding is also on the increase. More general concepts are replacing more specific ones as common, underlying molecular mechanisms are found for dissimilar diseases in different parts of the body. Once a disease can be understood as fitting into a general framework, the role of the specialist diminishes. Physicians...may be able to apply a general theory to work out the required treatment, and expect it to be effective even if it has never been used before.

## **David Deutch, Ph.D, The Fabric of Reality**

...the International Epidemiological Association and the WHO describes two aspects of health: health balance and health potential. Measuring progress in the third public health revolution entails going beyond counting diseases, their indicators, and risk factors. It requires delineating and measuring health in individuals.....Individuals can aim for more than freedom from those physical and mental disturbances that are listed in the disease nomenclature. With equal emphasis, the energy and reserves of health that permit a buoyant life, full of zest and the eager ability to meet life's challenges, should be sought.

***From Disease Prevention to Health Promotion: JAMA, 1999;281:1030-1033***

This global progress [in medicine] also has allowed more detailed study of the link between basic molecular defects and functional disturbance of processes in cells, organs, and the organism, the so-called "genotype-phenotype correlation". These correlations are often very elusive owing to the many steps in the cascade between cause and effect in the cell and the complex interactions between multiple genes and environmental factors....

The combination of large-scale gene-expression analysis with pharmacological and nutritional studies will ultimately allow the stratification of individuals by their genetically determined abilities for drug and nutrient metabolism. Tailor-made treatments and lifestyle regimens will improve the effectiveness of therapies and reduce side effects. This will apply equally to monogenic disease and more complex gene-environment interaction disorders, like cardiovascular disease, cancer, hypertension, arthritis, migraine, epilepsy, Parkinson's disease, and Alzheimer's disease.

***GJB van Ommen, The Human Genome Project and the Future of Diagnostics, Treatment and Prevention, Lancet 1999; 354:5-10***

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# NUTRITIONAL INTELLIGENCE

CANYON  
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HEALTH RESORTS  
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[www.canyonranch.com](http://www.canyonranch.com)



## *What is Nutritional Intelligence?*

It is the Canyon Ranch philosophy that integrates practical food and nutrition knowledge with an understanding of yourself. Developing your nutritional intelligence can lead to long-term eating strategies that work for you.

### GUIDING PRINCIPLES OF NUTRITIONAL INTELLIGENCE

#### **Honor your individuality**

Your nutritional needs are your own. Many factors influence nutrient requirements – genetics, health and medical history, eating preferences, lifestyle and more. Your eating experiences are closely connected with your natural ability to make food choices that reflect your uniqueness.

#### **Enjoy the sensual and social aspects of eating**

Maximize your enjoyment of food by indulging your preferences for flavor and texture, and by treasuring the social pleasures of the table. Include pleasant conversation and create meaningful mealtime rituals. Eating should be a joyful experience that engages your physical and emotional senses. A meal with family or friends nourishes both body and spirit.

#### **Consider the balance of your meals**

Choose a variety of foods, including generous amounts of vegetables and fruits, moderate amounts of protein-rich foods and whole grains, and small amounts of healthy fats and oils. A balanced approach to eating energizes the body, stimulates the mind and enriches the spirit.

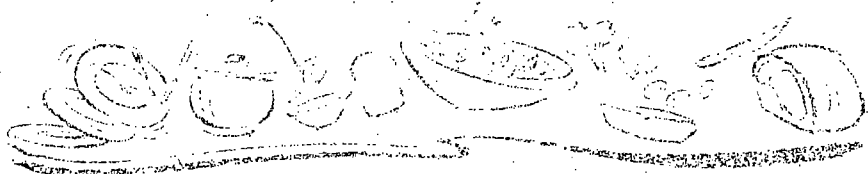
#### **Eat to gently satisfy your appetite**

Establish a pattern of eating regularly throughout the day to avoid extreme hunger. Learn to moderate your portions by eating with awareness and attention to your physical appetite.

#### **Focus on clean and wholesome food**

Choose fresh, seasonal vegetables and fruits, and foods free from preservatives, additives, hormones, antibiotics and other unnecessary chemicals. Shop for natural foods and discover great tastes and the rewards of supporting a cleaner and safer environment.

A balanced approach  
to eating energizes  
the body, stimulates  
the mind and  
enriches the spirit.



## HOW TO EAT INTELLIGENTLY

### ■ Begin by assessing personal needs or goals

Consult with a nutritionist to identify your nutritional needs. A nutritionist can guide you toward the diet that is best for you, derive nutritional meaning from lab tests, and evaluate types and amounts of supplements that may be important. A nutrition counselor will work with you to develop your healthiest relationship with food.

### ■ Establish a pattern of eating regularly

Nourish your body by eating regularly throughout the day to avoid extreme hunger. Try to eat every three to five hours. Work toward a pattern of breakfast, lunch and dinner with an afternoon snack, if necessary – especially if there is a long time between lunch and dinner. It's easy to forget to eat during a busy day, but regular meals may help you cope better with a demanding schedule.

### ■ Be mindful of portion sizes

Enjoy generous amounts of vegetables, and choose moderate portions of protein-rich food, starches, side dishes and fruit. Learn to stop eating when your hunger is satisfied, and work on distinguishing between physical hunger and other reasons for eating such as stress, anxiety, boredom and emotional hunger. Develop strategies for eating out – share entrees or order a salad and appetizer. Remember, you're more likely to be satisfied with reasonable portions if you don't let yourself become ravenously hungry between meals.

### ■ Eat 8 to 10 servings of vegetables and fruit daily

These foods have the most power to prevent disease. Make major improvements in your diet by finding at least three new ways to conveniently add vegetables and fruit to your daily routine. Consider adding fruit to your breakfast, enjoy a medium-to-large salad once a day, be sure that each meal includes vegetables and/or fruit, and always include fruit or vegetables in your afternoon snack. Finally, choose organic produce whenever possible to minimize pesticide exposure.

### ■ Emphasize whole grains

Whole grains provide fiber and help stabilize blood sugar levels for several hours after eating. Other great carbohydrate sources include beans, sweet potatoes and pasta cooked al dente. Try hummus and other bean spreads, lentil and pea soups, and vegetarian chili. Learn how to prepare whole grains like quinoa, barley, and brown and wild rice.



*Eat 8 to 10 servings of  
vegetables and fruit daily*

The type of fat you consume may have more impact on your health than the amount.

#### Focus on healthy fats and oils

Fat is an essential part of a healthy diet. Canyon Ranch recommends a range of 20 to 30 percent of calories from fat for most people, and an emphasis on those fats with a positive impact on health. In the last few decades we've learned a great deal about dietary fat, and many people have become frustrated by seemingly conflicting information. The latest word? The type of fat you consume may have more impact on your health than the amount.

- **Emphasize monounsaturated fats found in extra virgin olive oil, canola oil, avocado, olives and nuts.** Dress your salads lightly with an olive oil vinaigrette, using a delicious variety of vinegars or citrus juices. Sauté vegetables in olive oil and garlic. Eat small amounts of nuts each day and add avocado slices to sandwiches and salads.
- **Include a daily source of omega-3 fat in your diet.** Omega-3 fats protect against heart attack and reduce inflammation. They're abundant in oily, deep-water fish, and in nuts and seeds. You can get more omega-3 fat by adding freshly ground flax seeds to breads and muffins you bake at home, and by using fresh walnuts or pumpkin seeds on salads, in sauces or as snacks. Try eggs that contain higher amounts of omega-3 fat in the yolk, and enjoy fish – especially deep-water varieties such as salmon and sardines – several times a week.
- **Avoid trans-fat (hydrogenated oils).** We now know that trans-fat is as unhealthful as saturated fat from animals. Avoid using regular margarine as a spread or shortening when cooking; emphasize fats that are liquid at room temperature instead. When you shop for baked or packaged goods, be on the lookout for hydrogenated or partially hydrogenated oils in the list of ingredients. If you see "hydrogenated" on the label, make another choice: Create consumer demand for healthier products in the supermarket. Also, keep in mind that many fast foods – especially those that are fried – are loaded with trans-fat.
- **Minimize saturated fat.** Choose low-fat or fat-free dairy products like milk, yogurt and traditional low fat cheeses such as feta, chevre and part-skim mozzarella. Choose skinless chicken breasts and the leanest, best-trimmed cuts of red meat. Limit your consumption of foods made with butter and cream, and reduce your use of butter and full-fat cream cheese as spreads. Experiment with substitutes for full-fat dairy products in recipes.

(continued on back)



■ **Balance meals with some protein-rich food**

Include a protein-rich food with each meal to help control hunger and cravings, and stabilize energy levels. Our favorite sources of protein are beans, soy foods and fish, but there are many other plant and animal foods that can satisfy your protein needs. Don't overlook nut butters, low-fat or nonfat yogurt and cheeses, eggs and poultry.

■ **Limit sugar in your diet and avoid artificial sweeteners**

Savor the natural sweetness of whole foods such as fresh fruits, vegetables and nuts. If you must sweeten, go natural with small amounts of maple syrup, honey, brown rice syrup or natural sugar. Choose fruit for dessert, and stir fresh fruit or all-fruit preserves into plain yogurt for a quick breakfast or snack. You can also "sweeten" foods with cinnamon, vanilla and freshly grated nutmeg. Read labels to identify foods that are sweetened artificially, which inflates the desire for extreme sweetness.

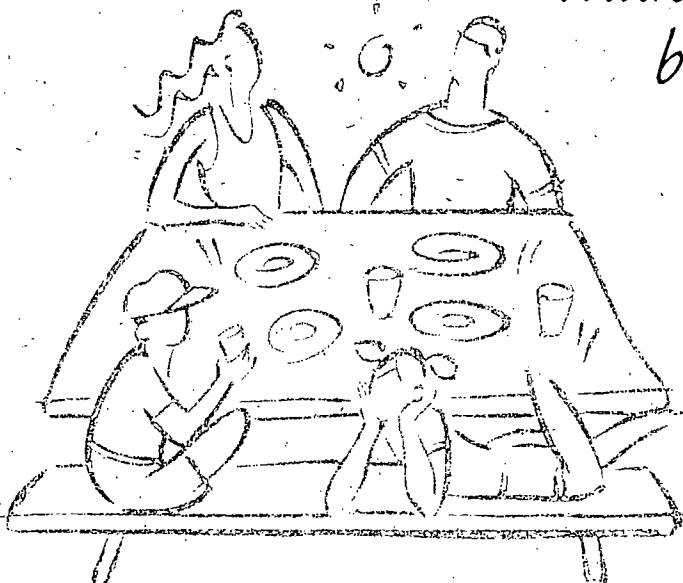
■ **Be sensible about salt**

Gradually cut down on salt while pampering your palate with delectable, healing herbs and spices. These additions enhance the flavor of food while gently working their restorative magic. Rosemary is calming; cinnamon warms; ginger and chiles add pizzazz. Salt is also a flavor enhancer, but using it in moderation enhances your health.

■ **Drink plenty of clean water every day**

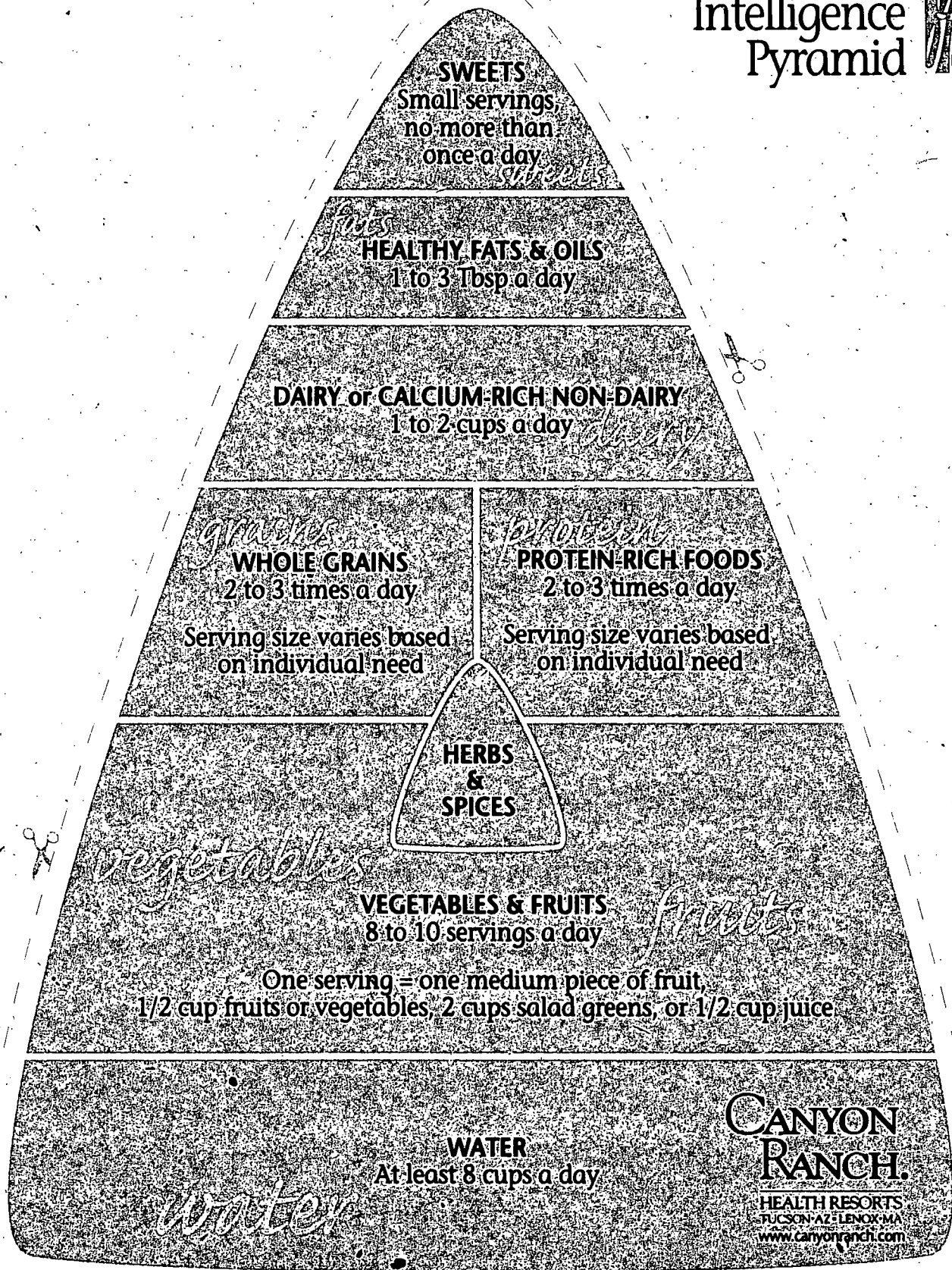
Your body is approximately 60 percent water. Because water is continuously used in nearly every life process, it's crucial to keep replenishing the supply. Proper hydration is also important for energy and hunger management – eight large glasses a day is a good rule. Make water your beverage of choice. Install a water cooler in your home or office, and use a beautiful, large tumbler as your glass. Add ice if you like, and a slice of lemon or lime to jazz up the flavor of nature's best beverage.

*Make water your  
beverage of choice*



# CANYON RANCH

## Nutritional Intelligence Pyramid



# CANYON RANCH

## Nutritional Intelligence Pyramid



### SWEETS

made from fresh,  
whole foods, especially  
those with fruit or nuts

### HEALTHY FATS & OILS

olive oil • olives  
seeds, especially flax & pumpkin  
avocado • nuts

### DAIRY or CALCIUM-RICH NON-DAIRY



low-fat or nonfat milk  
yogurt  
fortified soy milk

### WHOLE GRAINS

whole-grain breads,  
cereals & pasta  
barley • quinoa • millet  
bulgur • brown rice  
corn • wild rice



### PROTEIN-RICH FOODS

fish • legumes • soy foods  
eggs • nut butters  
low-fat natural cheese  
lean poultry & red meat



### HERBS & SPICES

ginger  
rosemary  
turmeric



### VEGETABLES

leafy greens • tomatoes  
onions & garlic • asparagus  
cruciferous vegetables  
root vegetables  
green peas • squash • green beans  
cucumbers • peppers • mushrooms  
eggplant • celery



### FRUITS

berries • apples • pears  
citrus • melon • tropical fruits  
stone fruits • bananas  
juice



### REFRESHING WATER

plain or flavored with lemon or lime  
black or green tea • herbal teas



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# Withdrawal/Redaction Marker

## Clinton Library

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|--------------------------|---------------------------------------------------------|------------|-------------|
| 001a. cover sheet        | testimony of Michio Kushi to WHCCAMP (partial) (1 page) | 03/27/2001 | b(6)        |

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**COLLECTION:**

Federal Records  
White House Commission on Complementary and Alternative Medicine Policy [WHCCAMP]

OA/Box Number: 43231

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**FOLDER TITLE:**

WHCCAM Meeting Testimony. March 26, 2001 [5]

2011-0568-S

kc811

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**RESTRICTION CODES**

Presidential Records Act - [44 U.S.C. 2204(a)]

- P1 National Security Classified Information [(a)(1) of the PRA]
- P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
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PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).

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- b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

**White House Commission on  
Complementary And Alternative Medicine Policy  
Public Hearing on CAM in Self-Care and Wellness**

Hyatt Regency Washington Hotel on Capitol Hill  
400 New Jersey Avenue, N.W.  
Washington, D.C. 20001  
March 27, 2001

***Nutrition, CAM, and Wellness from a CAM Perspective***

Panel #2 - Integrative Approaches to Wellness: Nutrition  
10:20 - 11:10 a.m. Tuesday

***Testimony of Michio Kushi  
With Addendum***

(b)(6)

# Withdrawal/Redaction Marker

## Clinton Library

| DOCUMENT NO.<br>AND TYPE | SUBJECT/TITLE                   | DATE       | RESTRICTION |
|--------------------------|---------------------------------|------------|-------------|
| 001b. testimony          | Michio Kushi (partial) (1 page) | 03/27/2001 | b(6)        |

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Federal Records  
White House Commission on Complementary and Alternative Medicine Policy [WHCCAMP]

OA/Box Number: 43231

### FOLDER TITLE:

WHCCAM Meeting Testimony, March 26, 2001 [5]

2011-0568-S

kc811

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*Nutrition, CAM, and Wellness from a CAM Perspective*  
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10:20 - 11:10 a.m. Tuesday, March 27, 2001

*Testimony of Michio Kushi*

(b)(6)

Dear Honorable Chairman and White House Commission Members,

The Era of Humanity is now beginning. Alternative and Complementary Medicine is one evidence of the processing of this transition from the Modern Age to the New Era of Humanity.

While we are appreciating the development of conventional medical technologies both in diagnosis and treatment, we also know that modern conventional medicine has been largely symptomatic and divisional approaches.

We are also appreciating all various Alternative and Complementary approaches to healthcare, including exercise, breathing, meditation, vibrational and electromagnetic treatments, herbal medicine, supplements, acupuncture, moxabustion, shiatsu massage, polarity, traditional folk medicine, psychological and spiritual approaches, and various diets.

Diets alone vary from juicing, raw food eating, high protein, vegetarian, high and low fiber, low sodium, and many others; and conventional nutritional theories, with their concept of calories. Some of these approaches, however, while we are appreciating their temporary effectiveness for certain symptoms, still maintain a fragmental view of human life.

The Macrobiotic way of life and its recommended dietary practice are based upon human traditional eating, with natural organic foods and proper cooking, in harmony with the environment, which has been practiced for many centuries in different climactic and cultural adaptations. (A Pyramid form of the Standard Macrobiotic Diet in a temperate climate is herewith attached.) Through this practice in America, Europe, Japan, some Asian countries, and South America, uncountable numbers of people have regained their health, even from terminal sicknesses, and have restored their loving family life and peaceful relations with people and society.

The approach of Macrobiotics is to solve and correct the cause of physical and mental disorders in daily diet and lifestyle. As examples, dietary causes of some disorders are briefly summarized here:

## 1. CANCER

Because cancer has diversified symptoms, its dietary causes are also diversified. For example:

**Prostate Cancer** – is caused by over-consumption of heavy animal protein and fat; together with oily/greasy and hard-baked food.

**Breast Cancer**- is caused by over-consumption of dairy fat and simple carbohydrates, such as sugar, chocolate and honey; together with oily/greasy food

Other cancer symptoms are summarized in the attached papers of causes, case histories, and medical research papers related to the macrobiotic diet (which were presented to the House of Representatives Government Reform Committee in June 1999; and the Asian Therapies Conference in March 2001); and in the book *The Cancer-Prevention Diet*.

## 2. HEART DISEASE

Though there are varieties of symptoms, the major causes are over-consumption of animal protein and fat, as well as hot spices, simple carbohydrates, and oily/greasy food, as detailed more in the book *Diet For a Strong Heart*. The Macrobiotic approach can secure Blood Pressure reduced by 10% from the national average, and cholesterol less than 150 (average for Macrobiotic persons is 126). These were studied already in 1976 by Harvard University Channing Laboratory and the Framingham Heart Study Center. A summary of medical research papers is attached.

3. ALLERGIES

The cause is generally over-consumption of dairy food, stimulants, and simple carbohydrates; as well as oily/greasy food, in various degrees.

4. ARTHRITIS

Several kinds of arthritis can be classified, such as osteo and rheumatoid; but overall, the causes are over-consumption of animal protein and fat, especially poultry, eggs, seafood, and dairy food, together with nightshade vegetables, fruits and fruit juices, simple carbohydrates, and stimulants.

5. DIABETES AND HYPOGLYCEMIA

For both, the underlying cause lies in a pancreatic hormone secretion disorder, which is caused by excessive eating of animal protein and fat, especially poultry, eggs, and cheese. Contributing are heavy baked flour consumption; and simple carbohydrates, stimulants, and oily/greasy food. Please see attached summary of medical research papers.

6. AIDS & VIRUS DISEASE

Decline of natural immunity is caused by over-consumption of sugar, chocolate, and other simple carbohydrates, and refined flour; together with dairy food; tropical fruit and fruit juices; and stimulants.

7. EMOTIONAL DISORDERS

Are caused by irregular eating. Some are more over-consumption of animal protein and fat, such as inwardly depressive paranoia symptoms. While over-consumption of sugar & simple carbohydrates, stimulants and spices, and soft drinks are causing more hyper-activity, excitement, irritability, and schizophrenia.

8. MENTAL DISORDERS

Violence and children's psychological problems, such as Attention Deficit Disorder (ADD) are also caused by their dietary habits, which lack whole grain and vegetables as a major portion of their eating; and by excessive intake of animal protein and fat; sugar, oily food, spices, and stimulants. Please see attached summary of medical research papers, including a reference to the Tidewater Detention Center report.

9. BODY-MIND-SPIRIT RELATION

Mind, Spirit, and Body should not be considered separate. Natural energy is received from the Universe, the Earth, and environment, forming our image, mental and spiritual nature, as well as chakras and

meridians. In addition, food also releases energy and vibration, affecting mind and spirit.

Practically all physical, mental and spiritual disorders are caused by our food, our lifestyle, and our environment. Therefore, correction to proper diet, lifestyle, and environment should be the center of any health approach, regardless of CAM or conventional medical approach. Please see the attached diagram, where Diet is at the center of all health and wellness approaches.

We recommend the following as the policy of the United States for Alternative and Complementary Medicine, as well as for Wellness:

1. Allot and distribute available funds for **Research and Education** on the effectiveness of Alternative and Complementary solutions, for both prevention and recovery, with diet and lifestyle as the base. We also recommend a pilot plan for clinical trials in some hospitals and healthcare centers.
2. Establish **Community and School Educational Programs** to recover healthy lifestyles and proper home-cooking, which is whole grains- and vegetable-based: including adult education, and public schools in their home economics or health education programs.
3. Hold **Industrial Conferences** to guide food producers, distributors and servers, including agricultural and marine products.
4. Help facilitate the use of proper diet and wellness plan in **Public Dining Facilities and in Government Programs** such as meals-on-wheels for seniors and in our prisons.
5. Encourage **Hospitals, Clinics, Healthcare Facilities and Medical Schools** to add dietary and wellness studies, counselling, cooking classes, and serving facilities with healthful menus.
6. Apply adequate **Insurance Policies** to support Alternative and Complementary guidance, healthcare and dietary counselling, and learning.
7. Encourage the avoidance of daily consumption of food and water which are overly **Artificialized, Chemicalized, Irradiated**; encourage the proper

evaluation of Genetic Modification; and encourage more respect for natural, organic, and traditional quality of food and drink.

8. Promote improvements to secure a more **Clean, Natural Environment** of our air, water, and soil; and encourage avoidance of technology which is environmentally harmful.

We would be happy to cooperate with such governmental efforts by participating in research and education, and by dispatching well-experienced macrobiotic educators, counselors, and cooking instructors to any facilities.

These policies would inevitably result in a great turning in the healthcare systems. We need vision, courage, and tireless efforts. On the process of turning, we may face opposition, hesitation, doubt, and misunderstanding. However, to overcome our health crisis, we need to urgently proceed in all domains related to human life. Upon the achievement of this revolutionary turning, America will become a symbol of health, happiness, and well-being for the future of entire planetary mankind.

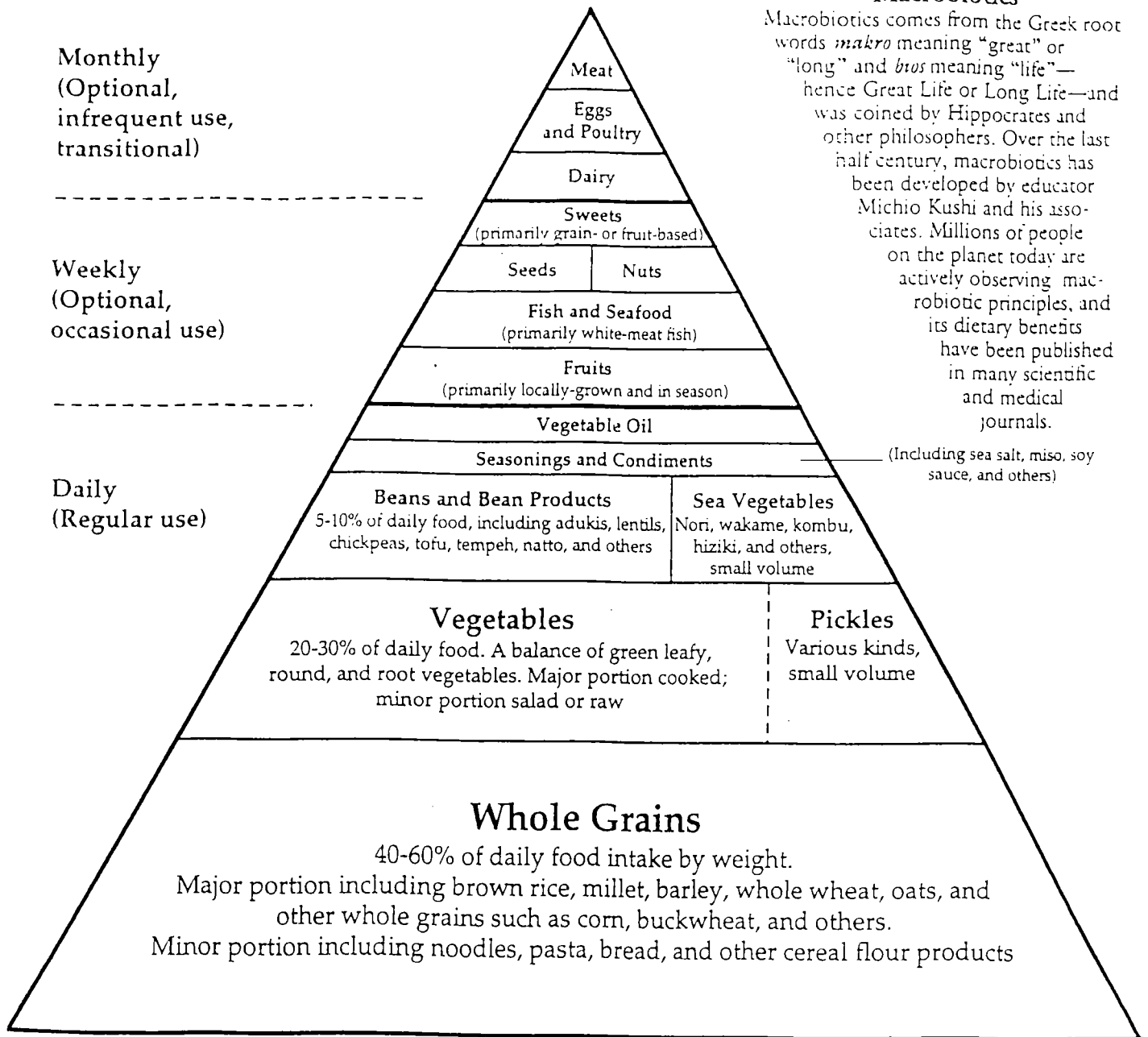
Thank you very much for this opportunity for presenting my humble statement.

# Macrobiotic Dietary Guidelines for a Temperate Climate

## Macrobiotics

Macrobiotics comes from the Greek root words *makro* meaning "great" or "long" and *bios* meaning "life"—hence Great Life or Long Life—and was coined by Hippocrates and other philosophers. Over the last half century, macrobiotics has been developed by educator Michio Kushi and his associates. Millions of people on the planet today are actively observing macrobiotic principles, and its dietary benefits have been published in many scientific and medical journals.

(Including sea salt, miso, soy sauce, and others)



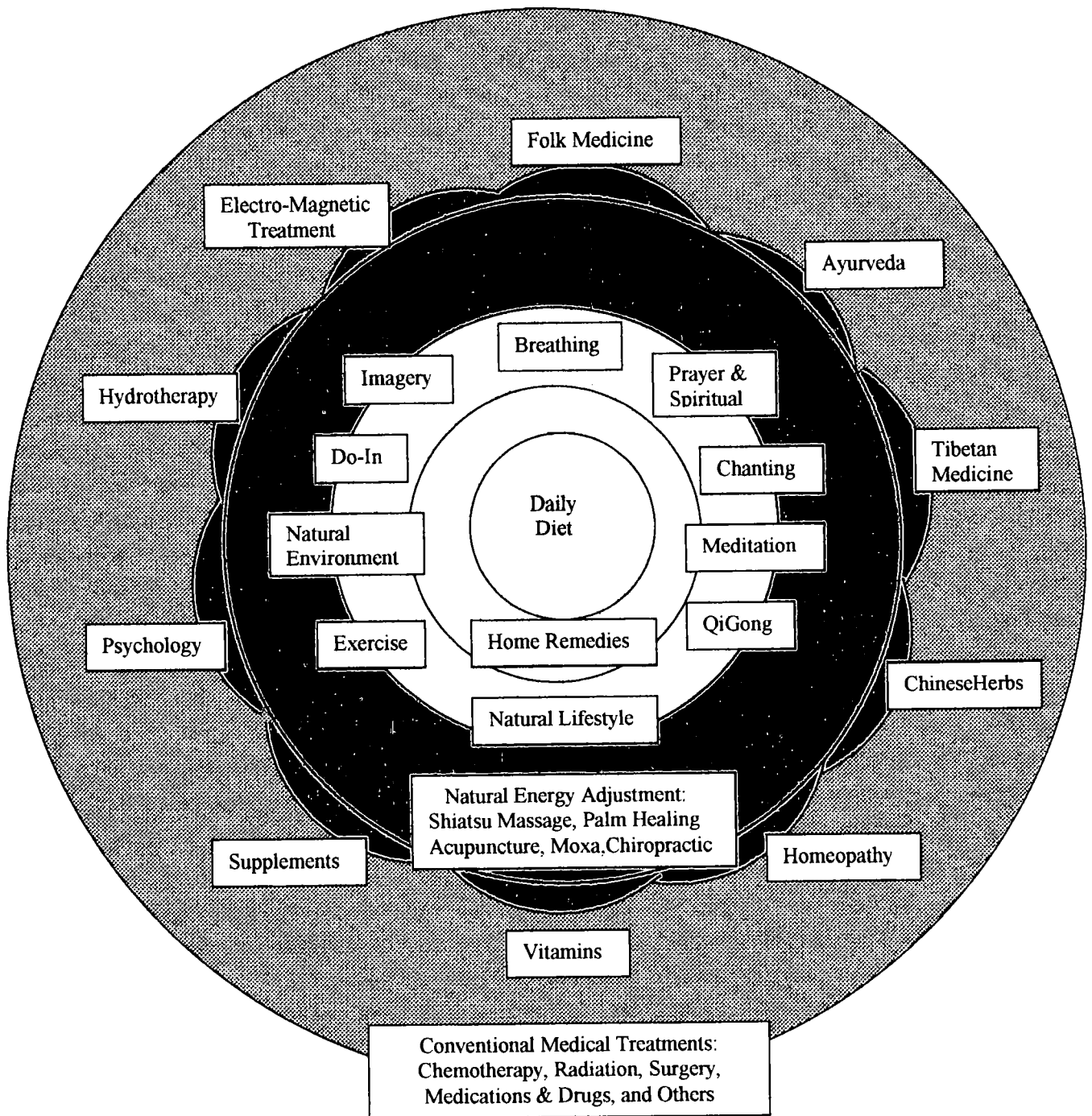
**Soup:** Grains, vegetables, beans, and sea vegetables may be consumed in the form of soup, 1-2 times daily or several times a week, in addition to the usual styles of preparing these foods

**Water:** non-stimulant beverages and natural, clean water, including spring, well, or filtered water for drinking and cooking

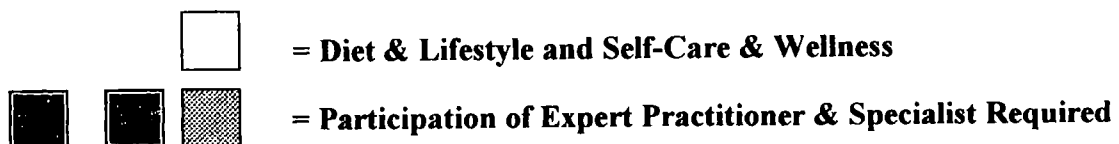
**Quality:** Food to be natural quality (non-genetically engineered), organically grown as much as possible, traditionally or naturally processed, and prepared using gas, wood fire, or other natural fuel

**Note:** These are standard averages that may be adjusted for climate and environment, cultural or ethnic heritage, gender, age, activity level, individual condition of health and personal needs, and other considerations

## Trial Draft of Overview of Health Approaches



**Macrobiotic Overview for Health Approaches, with Macrobiotically-Oriented Diet as the Center of CAM and Conventional Treatments**



# Way of Life Suggestions

- Live each day happily without being preoccupied with your health; try to keep mentally and physically active.
- View everything and everyone you meet with gratitude, particularly offering thanks before and after every meal.
- Please chew your food very well, at least 50 times per mouthful, or until it becomes liquid.
- It is best to retire before midnight and get up early every morning.
- It is best to avoid wearing synthetic or woolen clothing directly on the skin. As much as possible, wear cotton, especially for undergarments. Avoid excessive metallic accessories on the fingers, wrists, or neck. Keep such ornaments simple and graceful.
- If your strength permits, go outdoors in simple clothing. Walk on the grass, beach, or soil up to one half hour every day. Keep your home in good order, from the kitchen, bathroom, bedroom, and living rooms, to every corner of the house.
- Initiate and maintain an active correspondence, extending your best wishes to parents, children, brothers and sisters, teachers, and friends.
- Avoid taking long hot baths or showers unless you have been consuming too much salt or animal food.
- To increase circulation, scrub your entire body with a hot, damp towel every morning or every night. If that is not possible, at least scrub your hands, feet, fingers and toes.
- Avoid chemically-perfumed cosmetics. For care of the teeth, brush with natural preparations or sea salt.
- If your condition permits, exercise regularly as part of daily life, including activities like walking, scrubbing floors, cleaning windows, washing clothes and working in the garden. You may also participate in exercise programs such as yoga, martial arts, dance or sports.
- Avoid using electric cooking devices (ovens and ranges) or microwave ovens. Convert to gas or wood stove cooking at the earliest opportunity.
- It is best to minimize the frequent use of color television and computer display units.
- Include some large green plants in your house to freshen and enrich the oxygen content of the air of your home.
- Sing a happy song every day.

# Recommended Reading

*The Book of Macrobiotics: The Universal Way of Health, Happiness, and Peace*, Michio Kushi with Alex Jack. Japan Publications, Tokyo, revised edition, 1986.

*Macrobiotic Diet*, Michio and Aveline Kushi, edited by Alex Jack. Japan Publications, Tokyo, 1985.

*Aveline Kushi's Complete Guide to Macrobiotic Cooking for Health, Harmony, and Peace*, Aveline Kushi with Alex Jack. Warner Books, New York, 1985.

*Changing Seasons Cookbook*, Aveline Kushi and Wendy Esko. Avery Publishing Group, Wayne, N.J., 1985.

*The Cancer-Prevention Diet*, Michio Kushi with Alex Jack. St. Martin's Press, New York, 1983.

*Diet For a Strong Heart*, Michio Kushi with Alex Jack. St. Martin's Press, New York, 1985.

*Cancer and Heart Disease*, Michio Kushi. Japan Publications, Tokyo, 1982.

*Recalled by Life*, Anthony Sattilaro with Tom Monte, Avon Books, New York, N.Y., 1982.

*Macrobiotic Miracle*, Virginia Brown with Susan Stayman, Japan Publications, Tokyo, 1984.

*Diabetes and Hypoglycemia*, Michio Kushi, edited by John Mann. Japan Publications, Tokyo, 1985.

*Allergies*, Michio Kushi, edited by Mark Mead. Japan Publications, Tokyo, 1985.

*Macrobiotic Home Remedies*, Michio Kushi, edited by Marc Van Cauwenberghe, M.D. Japan Publications, Tokyo, 1985.

*Macrobiotic Pregnancy and Care of the Newborn*, Michio and Aveline Kushi, edited by Edward and Wendy Esko. Japan Publications, Tokyo, 1984.

*The Book Of Do-In: Exercises For Physical And Spiritual Development*, Michio Kushi. Japan Publications, Tokyo, 1979.

*How To See Your Health: The Book of Diagnosis*, Michio Kushi. Japan Publications, New York, 1980.

*The Macrobiotic Way*, Michio Kushi, edited by Steven Blauer. Avery Publishing Group, Wayne, N.J., 1985.

*These guidelines are intended to supplement your consultation with a medical or nutritional professional or personal guidance received from a qualified macrobiotic teacher.*

*This pamphlet presents a brief outline of the macrobiotic Way of Life and Eating.*

*We hope it provides the information necessary to encourage your study and practice of macrobiotics through books, classes, and first-hand experience.*

*We wish to express our gratitude and support to the following organizations for their dietary recommendations as expressed in their publications:*

U.S. DIETARY GOALS, published in 1977 by the U.S. Senate Select Committee on Nutrition and Human Needs.  
HEALTHY PEOPLE: HEALTH PROMOTION AND DISEASE PREVENTION, published in 1979 by the U.S. Surgeon General.  
DIET, NUTRITION AND CANCER, published in 1982 by the National Academy of Sciences.

*and to the reports and statements made by the:*

American Heart Association  
American Diabetes Association  
American Society for Clinical Nutrition  
American Cancer Society

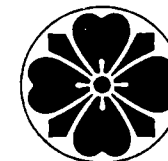
*For information on Macrobiotic educational programs and to arrange a meeting with a qualified Macrobiotic counselor, call or write:*

**Kushi Institute  
Box 7  
Becket, MA 01223  
(413) 623-5741**

# MACROBIOTICS

## Standard Dietary and Way of Life Suggestions

*For persons living  
in a temperate climate.*



**Kushi Institute  
Box 7  
Becket, MA 01223  
(413) 623-5741**

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The Book of Macrobiotics by Michio Kushi ©1977.  
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A NON-PROFIT ORGANIZATION



## THE KUSHI INSTITUTE

If after reading these guidelines you are interested in further information, programs and lectures please complete the following coupon and return to:

**Kushi Institute**  
Box 7  
Becket, MA 01223  
(413) 623-5741

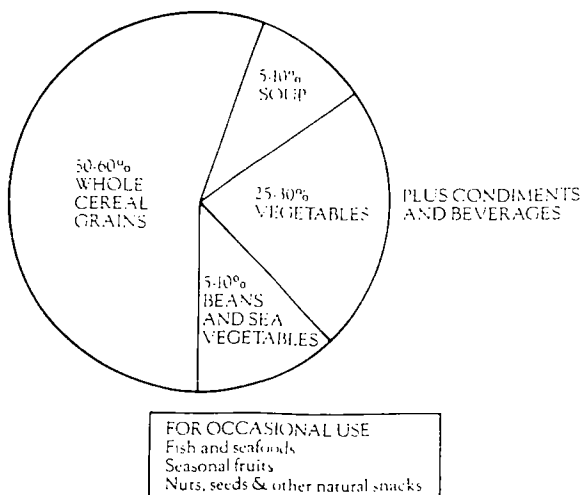
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone No. \_\_\_\_\_

## Daily Dietary Recommendations



**1. WHOLE CEREAL GRAINS.** At least 50% by volume of every meal is recommended to include cooked, organically grown, whole cereal grains prepared in a variety of ways. Whole cereal grains include brown rice, barley, millet, oats, corn, rye, wheat, and buckwheat. Please note that a small portion of this amount may consist of noodles or pasta, unyeasted whole grain breads, and other partially processed whole cereal grains.

**2. SOUPS.** Approximately 5-10% of your daily food intake may include soup made with vegetables, seaweed (wakame or kombu), grains or beans. Seasonings are usually miso or tamari soy sauce. The flavor should not be too salty.

**3. VEGETABLES.** About 20-30% of daily intake may include local and organically grown vegetables. Preferably, the majority are cooked in various styles (e.g. sauteed with a small amount of sesame or corn oil, steamed, boiled and sometimes prepared using tamari soy sauce or light sea salt as a seasoning). A small portion may be eaten as raw salad. Pickled vegetables without spice may also be used daily in small volume.

Vegetables for daily use include green cabbage, kale, broccoli, cauliflower, collards, pumpkin, watercress, Chinese cabbage, bok choy, dandelion, mustard greens, daikon greens, scallion, onions, daikon, turnips, acorn squash, butternut squash, buttercup squash, burdock, carrots, and other seasonally available varieties.

Avoid potatoes (including sweet potatoes and yams), tomatoes, eggplant, peppers, asparagus, spinach, beets, zucchini, and avocado from regular use. Mayonnaise and other oily dressings should be avoided.

**4. BEANS AND SEA VEGETABLES.** Approximately 5-10% of our daily diet includes cooked beans and sea vegetables. The most suitable beans for regular use are azuki beans, chickpeas, and lentils. Other beans may be used on occasion. Bean products such as tofu, tempeh, and natto can also be used. Sea vegetables such as nori, wakame, kombu, hiziki, arame, dulse, agar-agar, and Irish moss may be prepared in a variety of ways. They can be cooked with beans or vegetables, used in soups, or served separately as side dishes, flavored with a moderate amount of tamari soy sauce, sea salt, brown rice vinegar, umeboshi plum, umeboshi vinegar, and others.

**5. OCCASIONAL FOODS.** If needed or desired, 1-3 times a week, approximately 5-10% of that day's consumption of food can include fresh white-meat fish such as flounder, sole, cod, carp, halibut or trout.

Fruit or fruit desserts, including fresh, dried, and cooked fruits, may also be served two or three times a week. Local and organically grown fruits are preferred. If you live in a temperate climate, avoid tropical and semi-tropical fruit and eat, instead, temperate climate fruits such as apples, pears, plums, peaches, apricots, berries, and melons. Frequent use of fruit juice is not advisable. However, occasional consumption in warmer weather may be appropriate depending on your health.

Lightly roasted nuts and seeds such as pumpkin, sesame, and sunflower seeds, peanuts, walnuts, and pecans may be enjoyed as a snack.

Rice syrup, barley malt, amasake, and mirin may be used as a sweetener; brown rice vinegar or umeboshi vinegar may be used occasionally for a sour taste.

**6. BEVERAGES.** Recommended daily beverages include roasted bancha twig tea, stem tea, roasted brown rice tea, roasted barley tea, dandelion tea, and cereal grain coffee. Any traditional tea that does not have an aromatic fragrance or a stimulating effect can be used. You may also drink a moderate amount of water (preferably spring or well water of good quality) but not iced.

**7. FOODS TO ELIMINATE FOR BETTER HEALTH.** Meat, animal fat, eggs, poultry, dairy products (including butter, yogurt, ice cream, milk, and cheese), refined sugars, chocolate, molasses, honey, other simple sugars and foods treated with them, and vanilla.

Tropical or semi-tropical fruits and fruit juices, soda, artificial drinks and beverages, coffee, colored tea, and all aromatic stimulating teas such as mint or peppermint tea.

All artificially colored, preserved, sprayed, or chemically treated foods. All refined and polished grains, flours, and their derivatives. Mass-produced industrialized food including all canned, frozen, and irradiated foods.

Hot spices, any aromatic stimulating food or food accessory, artificial vinegar, and strong alcoholic beverages.

**8. ADDITIONAL SUGGESTIONS.** Cooking oil should be vegetable quality only. To improve your health, it is preferable to use only unrefined sesame or corn oil in moderate amounts.

- Salt should be naturally processed sea salt. Traditional, non-chemicalized shoyu or tamari soy sauce and miso may also be used as seasonings.
- Recommendable condiments include:
  - Gomashio (12-18 parts roasted sesame seeds to 1 part roasted sea salt)
  - Seaweed powder (kelp, kombu, wakame, and other seaweeds)
  - Sesame seaweed powder
  - Umeboshi plums
  - Tekka
  - Tamari soy sauce or shoyu (moderate use, use only in cooking for mild flavoring).
  - Pickles (made using bran, miso, tamari soy sauce, salt), sauerkraut.
- You may have meals regularly, 2-3 times per day, as much as you want, provided the proportion is correct and chewing is thorough. Avoid eating for approximately 3 hours before sleeping.

**THE IMPORTANCE OF COOKING.** Proper cooking is very important for health. Everyone should learn to cook either by attending classes or under the guidance of an experienced macrobiotic cook. The recipes included in macrobiotic cookbooks may also be used in planning your meals.

### SPECIAL ADVICE.

- The guidelines presented above are general suggestions. These suggestions may require modification depending on your special condition. Of course, any serious condition should be closely monitored by the appropriate medical, nutritional, and health professional.
- Along with beginning to change your diet, we invite you to attend any of our regular study programs or seminars and to meet personally with a qualified macrobiotic counselor as well as attending cooking classes.



***NUTRITION, CAM, AND WELLNESS FROM A CAM PERSPECTIVE***  
**Addendum to Testimony of M. Kushi**  
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# **Research Materials on Dietary Practice for Health Prevention and Improvement**

## **Educational Purpose**

**Michio Kushi & Associates  
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## ALTERNATIVE MEDICINE

### PAPERS BY DAVID EISENBERG AND OTHER RESEARCHERS

#### 1. January 28, 1993 (First Alternative Medicine Survey)

Eisenberg, D. M, et al., "Unconventional Medicine in the United States," *The New England Journal of Medicine* Vol. 328: 245-252, Jan. 28, 1993

Prevalence and Frequency of Use among 1539 Adult Respondents in 1990:

Lifestyle diets (eg. Macrobiotics): % who used in past 12 months: 4%; % who saw a provider: 13%; mean number of visits per user in past 12 months: 8 .

Extrapolation to the U.S. population suggests that in 1990 Americans made an estimated 425 million visits to providers of unconventional therapy. This number exceeds the number of visits to all U.S. primary care physicians (388 million). Expenditures associated with use of unconventional therapy in 1990 amounted to approximately \$13.7 billion, three quarters of which (\$10.3 billion) was paid out of pocket. This figure is comparable to the \$12.8 billion spent out of pocket annually for all hospitalizations in the United States.

Conclusion: The frequency of use of unconventional therapy in the United States is far higher than previously reported. Medical doctors should ask about their patients' use of unconventional therapy whenever they obtain a medical history."

#### 2. November 11, 1998 (Follow-up of 1993 Alternative Medicine Survey)

Eisenberg, D. M, et al., "Trends in Alternative Medicine Use in the United States, 1990-1997: Results of a Follow-up National Survey, " *Journal of the American Medical Association* 1998 Nov. 11; 280 (18): 1569-75

Estimated total number of visits in 1997 to lifestyle diet practioner 1,774,000.

Extrapolations to the US population suggest a 47.3% increase in total visits to alternative medicine practitioners, from 427 million in 1990 to 629 million in 1997, thereby exceeding total visits to all US primary care physicians. An estimated 15 million adults in 1997 took prescription medications concurrently with herbal remedies and/or high-dose vitamins (18.4% of all prescription users). Estimated expenditures for alternative medicine professional services increased 45.2% between 1990 and 1997 and were conservatively estimated at \$21.2 billion in 1997, with at least \$12.2 billion paid out-of-pocket. This exceeds the 1997 out-of-pocket expenditures for all US hospitalizations. Total 1997 out-of-pocket expenditures relating to alternative therapies were conservatively estimated at \$27.0 billion, which is comparable with the projected 1997 out-of-pocket expenditures for all US physician services.

Conclusion: Alternative medicine use and expenditures increased substantially between 1990 and 1997, attributable primarily to an increase in the proportion of the population seeking alternative therapies, rather than increased visits per patient."

### 3. September 2, 1998

Wetzel, M. S.; Eisenberg, D. M., Kaptchuk, T. J., "Courses Involving Complementary and Alternative Medicine at US Medical Schools," *Journal of the American Medical Association* Vol. 280, pp. 784-787, Sep. 2, 1998

- Conclusions. – There is tremendous heterogeneity and diversity in content, format, and requirements among courses in complementary and alternative medicine at US medical schools....
- As the discussion of incorporating complementary and alternative medicine topics appropriately into the medical curriculum evolves and broadens among medical faculties and professional organizations, we offer several suggestions based on information gathered in our survey and our experience with 5 years of offering an elective course in complementary and alternative medicine....  
Include an experiential component. Experiencing acupuncture or therapeutic massage or tasting a macrobiotic meal adds a dimension to the learning experience that a lecture or simple demonstration cannot. The deeper understanding that results should provide a better basis for responsibly advising patients.

## AMERICAN HEART ASSOC. COMMENTS ON MACROBIOTICS

AHA Internet Site: <http://www.americanheart.org/Scientific/statements/1997069704.html>

### A Statement for Healthcare Professionals From the Nutrition Committee

“There is now overwhelming evidence that dietary factors influence risk of coronary heart disease (CHD) both favorably and unfavorably. The three most atherogenic dietary risk factors are saturated fat, cholesterol, and obesity. The Step I and Step II diets are recommended to address these problems and are aimed at reducing intake of total fat, saturated fat, and cholesterol. On average, blood cholesterol levels can be reduced an estimated 5% to 15% through the StepI-StepII diet approach, with some hyperlipidemic patients experiencing even greater reductions. Increased carbohydrate intake, especially complex carbohydrates, is also recommended to replace the majority of calories lost through reduced fat intake. Choosing fiber-rich carbohydrate sources may foster additional cholesterol lowering and other nutritional benefits beyond those derived from fat modification alone. Inconsistent findings from studies on fiber and lipids have recently contributed to some confusion regarding fiber’s potential benefits.... Several longitudinal observational studies have reported significant inverse associations between total fiber intake and both cardiovascular and all causes of mortality... Inverse associations between fiber and blood pressure have also been reported... Similarly, high-fiber vegetarian diets have also been associated with reduced risk of obesity. It has been hypothesized that high-fiber foods may favorably impact satiety and slow gastric emptying, thereby sustaining a feeling of fullness that prohibits overeating. Intake of high-fiber foods may also improve glycemic control in diabetic individuals and reduce risk of insulin resistance.

As a preventive strategy, it has been recommended that children older than two years should gradually adopt the Step I diet, reducing total and saturated fat intake to 30% and 10% of total calories, respectively. Children should also derive the majority of calories from complex carbohydrates...

References include:

- Sacks, FM, Castelli, WP, Donner, A, Kass, EH. “Plasma lipids and lipoproteins in vegetarians and controls. *N. Engl. J. Med.* 1975; 292: 1148-1151
- Kushi, LH, Lew, RA, Stare, FJ, Ellison, CR, el Lozy, M., Bourke, G., Daly, L., Graham, I., Hickey, N., Mulcahy, R., “Diet and 20-year mortality from coronary heart disease: the Ireland-Boston Diet-Heart Study. *N. Engl. J. Med.* 1985; 312: 811-818.

# CANCER

## THE DIETARY CAUSES OF CANCER

Summary of Combined Testimony from House of Representatives Government Reform  
Committee, June 10, 1999

& Asian Therapies for Cancer Conference, March 1-2, 2001

By Michio Kushi

If this food intake is exercised properly, in harmony with the changing environment – including its quality, volume, and cooking – then human life is in accordance with the environment, and it not only maintains its health, vitality, and happiness; but also a peaceful mind, and higher spirit.

The cause of cancer is not excluded from this universal rule. As all other physical, mental, and spiritual human affairs, human sickness and health fundamentally depend on our daily dietary practice.

During the 20<sup>th</sup> Century, the human diet has been drastically changed: there has been higher consumption of animal protein and fat, refined sugar, mass-produced artificialized food; together with unnaturally chemicalized agriculture. These changes have produced the complex and diversified phenomena of human sickness in modern, civilized society. Sickness includes physical, mental, spiritual, and social sickness. Among them, cancer is one of the most representative of chronic conditions.

When we continuously consume food beyond our daily capacity to eliminate it in the form of physical and mental activities, the excessive dietary components accumulate, and eventually produce excessive, abnormal increase and division of the cells. This is what we call cancer.

The dietary causes of major cancers are the following, which are, of course, only briefly summarized here:

1. **Colon Cancer** – Over-consumption of meat and other heavy animal protein and fat
2. **Stomach Cancer** – Consumption of excessive animal protein, oily/greasy food, refined sugar, and spices
3. **Esophagus Cancer** – Over-consumption of dairy fat, with refined sugar and spices
4. **Prostate Cancer** – Excessive consumption of meat, eggs, and poultry, as well as cheese and other animal fat, with hard-baked flour products

5. **Pancreatic Cancer** – Over-consumption of poultry and eggs, shellfish, cheese, and hard-baked flour products
6. **Lung Cancer** – Over-consumption of animal protein and fat, including all sorts of meat, poultry, and eggs; as well as over-consumption of dairy fat, together with refined sugar, hot spices, and hard-baked flour
7. **Skin Cancer** – Excessive consumption of oily/greasy food, including dairy fat, refined sugar and sweets, and spices
8. **Malignant Melanoma** – Over-consumption of poultry, eggs, cheese, and other fat, together with refined sugar products
9. **Brain Cancer** – Either over-consumption of eggs, heavy meat, and other animal protein and fat; or, in other cases, over-consumption of dairy products and fat, and also excess of vegetable oil, such as in fried potatoes
10. **Thyroid Cancer** – Over-consumption of poultry, eggs, dairy fat such as in cheese, and hard-baked flour products, along with refined sugar products and hot spices; fried food
11. **Liver Cancer** – Over-consumption of animal protein and fat, including meat, poultry, eggs, and fish & seafood; and dairy food high in fat. Excessive refined sugar and baked flour products, with greasy/oily cooking
12. **Bone Cancer** – Excessive consumption of salty animal food; poultry, eggs, hard-baked flour, and especially deep-fried foods; too many minerals
13. **Lymphoma** – Excessive dairy food and fat, with refined sugar products and refined flour products, for some cases. Excessive meat and other animal protein and fat, including poultry and eggs, combined with dairy fat and refined sugar products, for other cases
14. **Leukemia** – Over-consumption of refined sugar products, such as sugar, cakes, chocolate, and fruits and fruit juices; combined with oily/greasy foods

For the case of Women's Cancers:

1. **Breast Cancer** – Over-consumption of dairy fat, refined sugar and other simple carbohydrates, and refined flour products, along with oily/greasy foods. Excess of fruits will accelerate breast cancer, once it is caused by the previous foods
2. **Uterine Cancer** – Heavy animal fat and dairy products, including cheese; over-consumption of vegetable oils, refined sugar products, and baked flour products
3. **Ovarian Cancer** – Over-consumption of poultry, eggs, shellfish, and other high-fat animal food, and baked flour products
4. **Cervical Cancer** – similar to prostate cancer in men - Over-consumption of baked flour and salty foods; and oily/greasy fried foods, including heavy animal and vegetable-quality foods

Over-consumption of stimulants and aromatic substances, such as hot spices, alcoholic beverages, and caffeine, accelerate the spread of a cancer condition.

Of course, lifestyle factors, such as exposure to high electromagnetic fields or radiation or smoking may accelerate the development of cancer, as does consumption of unnatural chemically-treated food and water. Non-organic chemically-cultivated agriculture, irradiation, microwave cooking, and other such methods of unnatural food production and artificial processing, along with daily unnatural lifestyle, are seriously questionable as well.

The **Standard Macrobiotic Diet** can prevent these cancers naturally, if it is properly prepared. But it cannot only prevent, but it can also relieve these conditions. It may take 2 months to 2 years, depending upon how deeply undesirable foods have accumulated in the body. For some cases, it is helpful to supply for a few weeks to a few months some **Home Remedies**, prepared from grains, beans, vegetables, and sea vegetables, which are serving to neutralize and eliminate undesirable accumulations.

There are cases which are not effective by Macrobiotic practice, which are assumed (1) Inaccurate Practice; (2) Lack of Proper Information; (3) Lack of Family Support; (4) Confusing Practices of Various Approaches Combined with Macrobiotic Practice; and (5) Loss of Recovering Ability, as Seen in the Terminal Cases.

## AMERICAN CANCER SOCIETY

### 1. Prevention & Early Detection

a. ACS Internet Site: <http://www2.cancer.org/prevention/index.cfm?prevention=1>

“The Importance of Nutrition in Cancer Prevention”

This is an overview of nutritional recommendations, and supports USDA Food Guide Pyramid:

“The American Cancer Society publishes nutrition guidelines to advise the public about dietary practices that reduce cancer risk. These guidelines are developed by expert advisory committees and are based on existing scientific evidence that relates diet and nutrition to cancer risk in human population studies as well as in laboratory experiments.

This evidence suggests that about one-third of the 500,000 cancer deaths that occur in the United States each year is due to dietary factors. Another third is due to cigarette smoking. Therefore, for the large majority of Americans who do not smoke cigarettes, dietary choices and physical activity become the most important modifiable determinants of cancer risk. The evidence also indicates that although genetics is a factor in the development of cancer, cancer cannot be explained by heredity alone. Behavioral factors such as cigarette smoking, dietary choices, and physical activity modify the risk of cancer at all stages of development. The introduction of healthful diet and exercise practices at any time from childhood to old age can promote health and reduce cancer risk....

Many dietary factors can affect cancer risk: types of foods, food preparation methods, portion sizes, food variety, and overall caloric balance. Cancer risk can be reduced by an overall dietary pattern that includes a high proportion of plant foods (fruits, vegetables, grains, and beans), limited amounts of meat, dairy, and other high-fat foods, and a balance of caloric intake and physical activity.

Many Americans do not follow such healthful practices. Indeed, trends indicate an increase in caloric intake, greater use of high-fat convenience foods, and a decline in physical activity among Americans. We believe that such unhealthful trends are due in part to shifts toward consumption of food outside the home, to more sedentary lifestyle patterns, and to the advertising and promotion of high-calorie foods. The [American Cancer Society Advisory Committee on Diet, Nutrition, and Cancer Prevention] is especially concerned about the effects of such trends on the long-term health of children, who are establishing lifetime patterns of food intake and physical activity.

...The committee's recommendations are consistent in principle with the 1992 US Department of Agriculture (USDA) Food Guide Pyramid, the 1995 Dietary Guidelines for Americans, and dietary recommendations of other agencies for general health promotion and for the prevention of coronary heart disease, diabetes, and other

diet-related chronic conditions. Although the committee recognizes that no diet can guarantee full protection against any disease, we believe that our recommendations offer the best nutrition information currently available to help Americans reduce their risk of cancer.

## **ACS Guidelines on Diet, Nutrition, and Cancer Prevention (excerpts)**

### **1. Choose most of the foods you eat from plant sources.**

- Eat five or more servings of fruits and vegetables each day.
  - Include fruits or vegetables in every meal.
  - Choose fruits and vegetables for snacks.
- Eat other foods from plant sources, such as breads, cereals, grain products, rice, pasta, or beans several times each day.
  - Include grain products in every meal.
  - Choose whole grains in preference to processed (refined) grains.
  - Choose beans as an alternative to meat.
  - Grains such as wheat, rice, oats, barley, and the foods made for from them constitute the base of healthful diets as illustrated by the USDA Food Guide Pyramid. Healthful diets contain 6 to 11 standard servings of foods from this group every day.
  - Grains are an important source of many vitamins and minerals such as folate, calcium, and selenium, all of which have been associated with a lower risk of colon cancer.
  - Whole grains are higher in fiber and certain vitamins and minerals than refined flour products.

### **2. Limit your intake of high-fat foods, particularly from animal sources.**

- Choose foods low in fat.
  - Replace fat-rich foods with fruits, vegetables, grains, and beans
  - Eat smaller portions of high-fat foods.
  - Choose baked and broiled foods instead of fried foods.
  - Select non-fat and low-fat milk and dairy products
  - When you eat packaged, snack, convenience, and restaurant foods, choose those low in fat.
- Limit consumption of meats, especially high-fat meats.
  - When you eat meat, select lean cuts.
  - Eat smaller portions of meat.
  - Choose beans, seafood, and poultry as an alternative to beef, pork, and lamb.
  - Select baked and broiled meats, seafood, and poultry, rather than fried.
  - High-fat diets have been associated with an increase in the risk of cancers of the colon and rectum, prostate, and endometrium. The association

between high-fat diets and breast cancer is much weaker.

- Consumption of meat – specially red meats (beef, pork, lamb) has been linked to cancers at several sites, most notable colon and prostate.
- The evidence indicates that saturated fat may be particularly important in increasing risk for cancer as well as for heart disease.
- Emphasize beans, grains, and vegetables in meals to help shift dietary patterns to include more foods from plant rather than animal sources.

**3. Be physically active: achieve and maintain a health weight.**

- Be at least moderately active for 30 minutes or more on most days of the week.
- Stay within your health weight range.
  - An imbalance of caloric intake and output can lead to overweight, obesity, and increased risk for cancers at several sites: colon and rectum, prostate, endometrium, breast (among postmenopausal women), and kidney.

**4. Limit consumption of alcoholic beverages, if you drink at all.**

- Alcohol consumption increases the risk of cancers of the mouth, esophagus, pharynx, larynx, and liver in men and women, and of breast cancer in women.
- Cancer risk increases with the amount of alcohol consumed...Studies show that the risk of breast cancer increases with an intake beginning at just a few drinks per week.

**Revised 05/11/99**

b. ACS Internet Site:

[Http://www2.cancer.org/prevention/more\\_prevention.cfm](http://www2.cancer.org/prevention/more_prevention.cfm)

“Prevention and Early Detection”

“Many cancers that are related to a person’s diet and level of physical activity can ... be prevented. Scientific evidence suggests that up to one-third of the 564,800 cancer deaths expected to occur in the US this year are related to poor nutrition or insufficient physical activity.”

c. ACS Internet Site:

<http://www2.cancer.org/prevention/index.cfm?preventionúctors>

“Diet and Activity Factors That Affect Risks for the Most Common Cancers”

**Breast Cancer**

Breast cancer is the leading site for cancer cases among American women and is second only to lung cancer in cancer deaths...Many studies suggest that consuming alcoholic beverages may increase the risk of breast cancers, even when consumed in moderation. Some studies suggest that diets high in fruits and vegetables decrease the risk for breast cancer, although this evidence is much weaker than that for other cancer sites...

### **Colorectal Cancer**

Colorectal cancers are the second leading cause of cancer death among Americans. Diets high in foods from plant sources (vegetables, fruits, whole grains, beans) have been associated with a decreased risk, whereas diets high in fat and red meat have been associated with an increased risk of colorectal cancer. Obesity and physical inactivity also appear to increase risk. Currently, the best approach to reducing the risk of colorectal cancer is to consume fewer high-fat foods. Limit intake of red meats, eat more vegetables, fruits, and whole grains, be physically active, and avoid obesity.

### **Endometrial Cancer**

Studies of endometrial cancer consistently find that being overweight increases risk. The association may be due to the increase in estrogen levels that occurs among postmenopausal women who are overweight. To reduce the risk of endometrial cancer, maintain a healthy weight through regular physical activity and healthy food choices.

### **Lung Cancer**

Lung cancer is the leading cause of cancer death among Americans. More than 80% of lung cancer cases occur as a result of tobacco smoking. Many studies have demonstrated that the risk of lung cancer among smokers and non-smokers is lower among people who consume recommended amounts of fruits and vegetables. To reduce the risk of lung cancer, do not smoke tobacco, and eat at least five servings of vegetables and fruits every day.

### **Oral and Esophageal Cancers**

Tobacco – including cigarettes, chewing tobacco, and snuff – and alcohol, singly and together, increase the risk for cancers of the mouth and esophagus. Eating recommended amounts of fruits and vegetables decreases the risk.

### **Prostate Cancer**

Prostate cancer is the leading cancer among American men. Scientists know that prostate cancer is related to male hormones, but are uncertain as to the exact mechanism involved. Intakes of animal fat, red meats, and dairy products have been found to be associated with an increase in the risk of prostate cancer, suggesting a role of saturated fat. To reduce the risk of prostate cancer, limit intake of foods from animal sources, especially saturated fats and red meat.

### **Stomach Cancer**

The incidence of stomach cancer is decreasing worldwide, especially in the United States. Year-round consumption of fresh foods, refrigeration, and other improvements

in food preservation methods have helped reduce risk. Infection with the bacterial species *Helicobacter pylori* may increase risk. To reduce the risk of stomach cancer, eat at least five servings of fruits and vegetables each day.

**Revised 05/11/99**

b. ACS Internet Site:

<http://www2.cancer.org/prevention/index.cfm?prevention=appendix>

Appendix: "Members of the American Cancer Society 1996 Advisory Committee on Diet, Nutrition, and Cancer Prevention:

...  
Lawrence Kushi, ScD, Associate Professor, Division of Epidemiology, School of Public Health, University of Minnesota, Minneapolis, MN"

c. Internet Site:

<http://www2cancer.org/prevention/index.cfm?prevention=references>

"References" (examples):

15. Willett, WC. Micronutrients and cancer risk. *AM J. Clin. Nutr* 1994; 59 (suppl 5): 1162S-1165S
18. Ames BN, Gold LS, Willett WC. The causes and prevention of cancer. *Proc Natl Acad Sci USA* 1995;92:5258-5265
19. Potter JD. Nutrition and colorectal cancer. *Cancer Causes Control* 1996;7:157-177
31. Hunter DJ, Willett WC. Nutrition and breast cancer. *Cancer Causes Control* 1996;7:56-68
34. Kushi LH, Lenart EB, Willett WC. Health implications of Mediterranean diets in light of contemporary knowledge. 2. Meat, wine, fats, and oils. *Am. J Clinical Nutr* 1995;61(suppl 6):1416S-1427S
70. Willett WC. Specific fatty acids and risks of breast and prostate cancer: dietary intake. *Am J Clin Nutr* 1997 Dec; 66(6 Suppl):1557S-1563S

## **2. ACS Comment on Macrobiotics**

Internet Site: [http://www.cancer.org/alt\\_therapy/overviews/uprpopu.htm](http://www.cancer.org/alt_therapy/overviews/uprpopu.htm)

"Alternative Cancer Therapies Popular Today," from *Cancer (medical journal)*, March 15, 1996 / Volume 77/ Number 6 by Barrie R. Cassileth, Ph.D. (Dept. of Medicine, University of North Carolina) and Christopher C. Chapman, B.A., Duke University)

“Today’s most popular anticancer diet is probably macrobiotics. As with many alternatives, its appeal is enhanced by association with an ancient, foreign culture, in this case Japan. The popularity of macrobiotics can be traced to the efforts of Michio Kushi, a tireless proponent. Initially nutritionally deficient, the diet was enhanced and now derives 50-60% of its calories from whole grains; 25-30% from vegetables; and the remainder from beans, seaweed, and soups. (Reference: Kushi, M.: The macrobiotic approach to cancer. Wayne, NJ: Avery Publishing Group, 1982.) The diet avoids meat and certain vegetables, and promotes soybean consumption. The NIH Office of Alternative Medicine recently funded a pilot study of the cancer-preventive effects of the macrobiotic diet. The principal investigator is Lawrence Kushi, ScD, a researcher on the faculty of the University of Minnesota School of Public Health and the son of Michio Kushi.”

### **3. ACS Comment on Macrobiotics**

#### **Recommendation: University of Texas Website**

Internet Site: [http://www.cancer.org/alt\\_therapy/resources.htm](http://www.cancer.org/alt_therapy/resources.htm)

“How Can I Learn More About Alternative and Complementary Methods?  
Cancer Specific Websites”

University of Texas Center for Alternative Medicine Research in Cancer

(Please see below for an excellent summary of medical research about macrobiotics.)

## UNIVERSITY OF TEXAS WEBSITE ON MACROBIOTICS AND CANCER

### UNIVERSITY OF TEXAS~HOUSTON HEALTH SCIENCE CENTER

Internet Site: <http://www.sph.uth.tcm.edu/utcam/>

The Center for Alternative Medicine Research (UT-CAM) is dedicated to investigating the effectiveness of alternative/complementary therapies used for cancer prevention and control. It works in collaboration with M.C. Anderson Cancer Center. It was one of 11 centers established by the NIH National Center for Complementary and Alternative Medicine (old Office of Alternative Medicine) to evaluate alternative therapies.

- It is the only one focussed solely on cancer, and is co-funded by the National Cancer Institute.
- It also establishes a national network of alternative medicine practitioners, conventional practitioners, and researchers
- It supports critical evaluation skills among alternative medicine practitioners and researchers.

Macrobiotics, among other cancer therapies reviewed as a “Special Regimen/Integrated System” on 7/21/98. A summary follows. The entire 17 page Review will sent at the end of this transmission.

#### U. of Texas Overview

Definition of “macrobios.” Yin & yang. George Ohsawa & Michio Kushi. Yin & yang spectrum of foods. Ohsawa’s 10-stage diet vs. Standard Macrobiotic Diet: THIS RESTRICTIVE DIET IS NO LONGER ADVOCATED BY MACROBIOTIC COUNSELORS (!)

Books by Michio Kushi. Sattilaro’s *Recalled by Life*. B12 and Vitamin D deficiencies. 1984 Subcommittee on Health and Long Term Care of the Select Committee on Aging, House of Representatives: “MB diet appears to be adequate mix of foods.”

Feasibility of Reimbursement (insurance): None

Prevalence of Use:

- Cassileth reported that 63% OF CANCER PATIENTS WHO RECEIVED SOME FORM OF DIETARY THERAPY IN THE COMMUNITY RECEIVED OR WERE EXPOSED TO THE MACROBIOTIC DIET. (Cassileth BR, Lusk EF, Strouse TB, Bodenheimer BJ. Contemporary unorthodox treatments in cancer medicine: A study of patients, treatments, and practitioners. *Annals of Internal Medicine*. 1984;101:105-112)
- Kushi estimates that the standard macrobiotic diet has been practiced daily by hundreds of thousands of people worldwide.

- The Office of Technology Assessment (OTA) found it to be “among the most popular unconventional approaches used by cancer patients (OTA. Macrobiotic Diets: Common Knowledge Press; 1990)

Estimated Cost/Expenditure/Reimbursement: comparable to that of a standard American diet, when all factors are considered.

### **U. of Texas Science**

Articles citing the macrobiotic diet as a treatment for cancer. “Based on our review of the literature and other sources, 106 references were identified, of which 51 (48%) were applicable to cancer. Of these, 41 (80%) were retrieved and we classified the references in the following types of information:

|                               |   |
|-------------------------------|---|
| Retrospective Cohort Studies: | 2 |
| Best Case Series:             | 2 |
| Case Reports:                 | 2 |

### **U. of Texas Summary of Research**

1. Carter JP, Saxe GP, Newbold V., Peres CE, Campeau RJ, Bernal-Green L. Hypothesis: Dietary management may improve survival from nutritionally linked cancers based on analysis of representative cases. *Journal of the American College of Nutrition*. 1993;12:209-26

STUDY # 1: 23 respondents of 101 patients with pancreatic cancer who practiced a macrobiotic diet for at least 3 months.

- Mean survival was 17 months compared to 6 months for control group of patients.
- Macrobiotic patients had a 52% one year survival compared to 9.7% for control group.

STUDY #2: 18 Tulane Hospital patients with stage D2 prostate cancer.

- Mean survival was 177 months for macrobiotic, 91 months for controls. (Risk RR=1.6 for controls, survival curve differences were not significant)

CASE REPORT: 182 patients who sought MB counseling and responded to a subsequent nationwide mailed questionnaire. 10 cases are presented for patients with cancer of the pancreas, prostate, and uterus.

2. Review of the book *Cancer Free: 30 who triumphed over cancer naturally*, Japan Publications Inc. 1995 by Fawcett A. and Smith C.

Best case series of 28 patients selected because they had positive results using the macrobiotic diet.

3. Newbold, V. Remission of advanced malignant disease: A review of cases with a

possible dietary factor. (as contained in the book *Cancer Free*, 372-5

Best case series of 6 patients with advanced or inoperable cancer who had recovered on a macrobiotic diet. Documented by a doctor whose spouse had inoperable cancer that improved following the adoption of a macrobiotic diet.

### Proposed Mechanism of Action

Quotations from *The Cancer Prevention Diet: Michio Kushi's Blueprint for the Relief and Prevention of Disease*.

### Toxicity

“The American Cancer Society has stated that the macrobiotic diet provides inadequate nutrition for cancer patients, is unsafe and can cause malnutrition and death. The articles cited by one of these warnings concerned a case of scurvy which occurred while practicing the older, more restricted form of macrobiotics.”

## **U. of Texas Annotated Bibliographies**

Summary of 28 Cancer Patients Recovering with Macrobiotics from cancer of the prostate (3), melanoma (6), uterus (3), breast (5), stomach, leukemia, pancreas (2), colon (2), brain – astrocytoma, urethra, lung, brain, thyroid, leukemia – chronic myelocytic, bile duct, Hodgkin's disease, ovary

Summary of Vivien Newbold's 6 cases:

- Advanced or otherwise untreatable cancers who recovered using macrobiotics: pancreas metastasized to liver; malignant melanoma; malignant astrocytoma; endometrial stromal sarcoma; adenocarcinoma of the colon; abdominal leiomyosarcoma; Review of CT scans and other medical tests revealed no evidence of tumors after adherence to the macrobiotic diet. All of the patients (except one whose cancer came back after she discontinued macrobiotics) were reported to be working full time, leading very active lives, and feeling in excellent health. These cases were all reviewed independently and the diagnoses confirmed by the pathology and radiology departments of Holy Redeemer Hospital in Meadowbrook, Pennsylvania.
- Incurable colon cancer with no conventional treatment (Dr. Newbold's husband): “Eight months after being described as hopeless, he was feeling ‘healthier than he ever felt in his life...a follow-up CT scan revealed that about 70 percent of the cancer was gone.’...”

## **U. of Texas Reference List**

Includes:

- Kushi, M. *The Macrobiotic Approach to Cancer: Towards Preventing and Controlling Cancer with Diet and Lifestyle.* Garden City Park, NY: Avery Publishing Group, Inc; 1991
- Kushi, L. Personal communication
- Sattilaro A. *Recalled by Life.* 1982
- Kushi, M. *The Cancer Prevention Diet: Michio Kushi's Blueprint for the Relief and Prevention of Disease.* New York: St. Martin's Press

# **NIH GRANT STUDY OF THE MACROBIOTIC APPROACH TO CANCER**

## **OVERVIEW**

NATIONAL INSTITUTES OF HEALTH –

- OFFICE OF ALTERNATIVE MEDICINE (old name)
- NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE (new name)

1. Internet Site: <http://www.nccam.nih.gov/nccam/research/grants/rfb/grant-1/html>

From chart of Office of Alternative Medicine-sponsored research from fiscal year (FY) 1993 – fiscal year (FY) 1997 Grant Award & Research Data  
(This is our NIH Cancer Best Case Series, still to be completed)

|                            |                                                                       |
|----------------------------|-----------------------------------------------------------------------|
| Grant Number:              | R21RR09472                                                            |
| Institution/Project Title: | University of Minnesota Twin Cities<br>Macrobiotic Approach to Cancer |
| City, State, P.I.          | Minneapolis, MN; Kushi, Principal Investigator                        |
| NIH Institute              | NCRR                                                                  |
| Amount (FY 1993):          | \$29,964                                                              |

3. Internet Site:

<http://www.nccam.nih.gov/nccam/fcp/classify/index.html>

For Consumers and Practitioners: Classification of CAM (Complementary and Alternative Medicine) Practice

IV. Biologically-Based Therapies

Special Diet Therapies: This subcategory includes dietary approaches and special diets that are applied as alternative therapies for risk factors or chronic disease in general:

Vegetarian, Fasting, High Fiber, MACROBIOTIC, Mediterranean, Paleolithic, Asian, Natural Hygiene, Pritikin, Ornish, McDougall, Gerson, Kelly-Gonzales, Wigmore, Livingston-Wheeler, Atkins, Diamond

# **A STUDY OF THE MACROBIOTIC APPROACH TO CANCER**

## **BEST CASE SERIES SUMMARY OF FILES**

**Compiled February 1996  
Updated March 2001**

~~**CONFIDENTIAL**~~

**DETERMINED TO BE AN  
ADMINISTRATIVE MARKING**  
INITIALS: W DATE: 05/02/12

National Institutes Of Health

Office Of Alternative Medicine (Old)  
National Center For Complementary  
And Alternative Medicine (New)

FY 1993 - NCRR

Grant Number: R21RR09472  
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The October 1995 Summary of Jane Teas, Ph.D. was amended by Chris Akbar in February 1996 with the addition of a chronological summary of each patient's records, an index of cases, and an index of cancers; and amended again in March 2001 with the addition of 3 patients.

Currently there are the 78 files with responses to both the Initial questionnaire and consent form mailing and the second mailing consisting of the:

- Medical and Macrobiotic History questionnaire
- Functional Assessment questionnaire
- Medical Records Acquisition forms

There are 37 additional files with Initial questionnaire responses which did not appear to meet the study criteria and were not sent the Second mailing.

Of the 78 files, 65 contain Medical Records from at least one source. Receipt of some records is still pending.

## INDEX OF CASES

|         |       |                                                     |
|---------|-------|-----------------------------------------------------|
| 1. #4   | V. C. | Lymphocytic Lymphoma mets to Colon                  |
| 2. #5   | M. K. | Lymphocytic Lymphoma mets to Bone Marrow            |
| 3. #8   | T. M. | Malignant Melanoma mets to Lymph Nodes              |
| 4. #9   | M. H. | Astrocytoma                                         |
| 5. #10  | S. W. | Breast Carcinoma in-situ (lobular)                  |
| 6. #13  | B. K. | Prostate cancer mets to lymph glands                |
| 7. #15  | C. A. | Inflammatory Carcinoma of Left Breast               |
| 8. #16  | S. A. | Prostate Cancer and Kidney Tumor                    |
| 9. #17  | W. B. | Adenocarcinoma of Prostate, mets to Lymph Nodes     |
| 10.#19  | B. J. | Breast Cancer                                       |
| 11.#20  | B. L. | Malignant Melanoma                                  |
| 12.#26  | N. A. | Pancreatic Cancer mets to Lymph Nodes & Liver       |
| 13.#28  | C. S. | Chronic Lymphocytic Leukemia                        |
| 14.#29  | M. M. | Malignant Melanoma mets to Lymph & Small Intestines |
| 15.#31  | C. D. | Cancer on Ascending Colon, possible mets to Liver   |
| 16.#32  | M. S. | Anaplastic Astrocytoma                              |
| 17.#34  | B. K. | Adenoma of Left Breast, mets to Lymph & Bones       |
| 18.#38  | E. N. | Endometrial Stromal Sarcoma mets to Bones &Lungs    |
| 19.#42  | J. T. | Melanoma with mets to Lymph Nodes                   |
| 20.#43  | W. O. | Adenocarcinoma of Sigmoid Colon mets to Lymph       |
| 21.#47  | E. H. | Adenocarcinoma of Prostate, mets to Bones           |
| 22.#48  | P. C. | Endometrial Hyperplasia & Breast Carcinoma in situ  |
| 23.#50  | D. B. | Acute Myelogenous Leukemia, in Spinal fluid         |
| 24.#52  | E. B. | Hodgkin's Lymphoma in neck,lung,bone,stomach,groin  |
| 25.#57  | J. C. | Astrocytoma Glioma                                  |
| 26.#60  | P. F. | Ovarian Adenocarcinoma mets to Peritoneum           |
| 27.#65  | E. L. | Medullary Carcinoma of Left Breast                  |
| 28.#67  | D. M. | Adenocarcinoma of Prostate, possible mets to Ribs   |
| 29.#73  | T. L. | Malignant Melanoma mets to Groin                    |
| 30.#75  | K. D. | Adenocarcinoma of Small Intestine mets to Lymph     |
| 31.#77  | J. G. | Adenocarcinoma of Prostate                          |
| 32.#78  | W. K. | Adenocarcinoma of Rectum mets to Liver              |
| 33.#109 | L. P. | Chronic Lymphocytic Leukemia, B cell                |
| 34.#114 | M. B. | 2 Masses in Liver                                   |
| 35.#116 | F. L. | Lymphoma mets to Bones                              |
| 36.#118 | S. B. | ChronicLymphaticLeukemia/ProstateAdenocarcinoma     |
| 37.#122 | R. B. | Retroperitoneal Sarcoma of Kidney mets to Lymph     |
| 38.#123 | B. A. | Adenocarcinoma of Prostate                          |
| 39.#124 | M. R. | Adenocarcinoma of Prostate mets to Colon & Rectum   |

|         |       |                                                                             |
|---------|-------|-----------------------------------------------------------------------------|
| 40.#125 | S. S. | Prostate Cancer                                                             |
| 41.#129 | P. S. | Multiple Myeloma mets to Liver                                              |
| 42.#131 | K. R. | Non-Hodgkin's Lymphoma, mets throughout Lymph                               |
| 43.#132 | J. L. | Malignant Melanoma mets to Lymph Nodes                                      |
| 44.#133 | C. C. | Tubo-Ovarian Complex                                                        |
| 45.#138 | J. S. | Plasmacytomas of Sinus, Ethmoids, Nasopharynx                               |
| 46.#139 | M. A. | Breast Cancer                                                               |
| 47.#142 | M. S. | Breast Lump                                                                 |
| 48.#143 | R. S. | Non-Secreting Islet Cell Cancer of Pancreas                                 |
| 49.#144 | S. M. | Ovarian Cancer & Endometrial Cancer synchronously                           |
| 50.#147 | D. L. | Adenocarcinoma of Prostate, mets to Lymph Nodes                             |
| 51.#148 | J. R. | Breast Adenocarcinoma mets to Lymph, Lung, Bone?                            |
| 52.#152 | M. C. | Chronic Lymphocytic Leukemia                                                |
| 53.#154 | A. G. | Prostate Cancer mets to Bones                                               |
| 54.#155 | N. S. | Prostate Adenocarcinoma mets to Soft tissue & Bones                         |
| 55.#158 | J. D. | Prostate Adenocarcinoma with Perineural invasion                            |
| 56.#159 | J. M. | Non-Hodgkin's Lymphoma                                                      |
| 57.#161 | C. M. | Parotid Gland Tumor mets to Lungs                                           |
| 58.#163 | S. S. | Prostate Adenocarcinoma                                                     |
| 59.#173 | B. R. | Pancreatic Adenocarcinoma mets to Lymph Nodes                               |
| 60.#174 | C. S. | Colon cancer recurred in stomach, abdomen, jejunum                          |
| 61.#176 | M. S. | Chronic Myelocytic Leukemia                                                 |
| 62.#181 | A. K. | Mixed-Cell Lymphoma                                                         |
| 63.#191 | T. H. | Carcinoma of Prostate                                                       |
| 64.#197 | R. R. | Squamous Cell Carcinoma of Prostate                                         |
| 65.#214 | D. S. | Malignant Melanoma mets to Lymph Node                                       |
| 66.#215 | C. K. | Astrocytoma                                                                 |
| 67.#221 | G. G. | Lump on Breast                                                              |
| 68.#223 | T. F. | Prostate cancer                                                             |
| 69.#225 | G. A. | BHP                                                                         |
| 70.#227 | G. M. | Astrocytoma                                                                 |
| 71.#228 | H. M. | Breast Infiltrating Ductal Carcinoma mets to Hip                            |
| 72.#229 | A. C. | Prostate Cancer mets to Bone-C7                                             |
| 73.#230 | M. S. | Adenocarcinoma of Left Breast                                               |
| 74.#231 | J. M. | Metastatic Malignancy; Undifferentiated Sarcoma                             |
| 75.#233 | A. L. | Amelanotic Malignant Melanoma of Left Conjunctiva                           |
| 76.#234 | J. V. | Adenocarcinoma of Lungs mets Liver/Pancreas/Bones/<br>Lymph/Retroperitoneum |
| 77.#235 | M. G. | Colon Cancer mets Lung                                                      |
| 78.#236 | J. M. | Non-Hodgkins Lymphoma mets Bone Marrow                                      |

## INDEX OF CANCERS

Total # Cases: 78    Total# Primary Cancers: 80

**ASTROCYTOMA**                      #Cases: 5    %Cases: 7%            %Cancers: 7%

#9    M. H.  
#32   M. S.  
#57   J. C.  
#215 C. K.  
#227 G. M.

**BREAST**                              #Cases: 12   %Cases: 15%    %Cancers: 16%

#10   S. W.  
#15   C. A.  
#19   B. J.  
#32   B. K.  
#48   P. C.  
#65   E. L.  
#139 M. A.  
#142 M. S.  
#148 J. R.  
#221 G. G.  
#228 H. M.  
#230 M. S.

**COLON-RECTUM**                      #Cases: 5    %Cases: 6%            %Cancers: 6%

#31   C. D.  
#43   W. O.  
#78   W. K.  
#174 C. S.  
#235 M.G.

**ENDOMETRIUM**                      #Cases: 3    %Cases: 4%            %Cancers: 4%

#38   E. N.  
#48   P. C.  
#144 S. M.

**KIDNEY**                              #Cases: 2    %Cases: 3%            %Cancers: 3%

#16   S. A.  
#122 R. B.

**LEUKEMIA**

#Cases: 6 %Cases: 8% %Cancers: 8%

#28 C. S.  
#50 D. B.  
#109 L. P.  
#118 S. B.  
#152 M. C.  
#176 M. S.**LIVER**

#Cases: 1 %Cases: 1% %Cancers: 1%

#114 M. B.

**LUNG**

#Cases: 1 %Cases: 1% %Cancers: 1%

#234 J. V.

**LYMPHOMA**

#Cases: 8 %Cases: 10% %Cancers: 10%

#4 V. C.  
#5 M. K.  
#52 E. B.  
#116 F. L.  
#131 K. R.  
#159 J. M.  
#181 A. K.  
#236 J. M.**MALIGNANT MELANOMA**

#Cases: 8 %Cases: 11% %Cancers: 11%

#8 T. M.  
#20 B. L.  
#29 M. M.  
#42 J. T.  
#73 T. L.  
#132 J. L.  
#214 D. S.  
#233 A. L.**MULTIPLE MYELOMA**

#Cases: 1 %Cases: 1% %Cancers: 1%

#129 P. S.

**NOSE PLASMACYTOMA**

#Cases: 1 %Cases: 1% %Cancers: 1%

#138 J. S.

**OVARY**

#Cases: 3 %Cases: 4% %Cancers: 4%

#60 P. F.

#133 C. C.  
#144 S. M.

**PANCREAS**

**#Cases: 3 %Cases: 4% %Cancers: 4%**

#143 R. S.  
#173 B. R.  
#26 N. A.

**PAROTID GLAND**

**#Cases: 1 %Cases: 1% %Cancers: 1%**

#161 C. M.

**PROSTATE**

**#Cases: 20 %Cases: 28% %Cancers: 26%**

#13 B. K.  
#15 S. A.  
#17 W. B.  
#47 E. H.  
#67 D. M.  
#77 J. G.  
#118 S. B.  
#123 B. A.  
#124 M. R.  
#125 S. S.  
#147 D. L.  
#154 A. G.  
#155 N. S.  
#158 J. D.  
#163 S. S.  
#191 T. H.  
#197 R. R.  
#223 T. F.  
#225 G. A.  
#229 A. C.

**SARCOMA**

**#Cases: 1 %Cases: 1% %Cancers: 1%**

#231 J. M.

**SMALL INTESTINE**

**#Cases: 1 %Cases: 1% %Cancers: 1%**

#75 K. D.

## SUMMARY OF SIX BEST CASES

#15 C. A. is a female born 09/27/52

- 07/23/85 **Surgical Biopsy – Yale-New Haven Hospital, Pathology Slide S85-9878 -** Inflammatory Carcinoma of the Left Breast: ~6 x 6 cm mobile, firm, dense mass with peau d'orange thickening of the skin from 3 to 6 o'clock, with erythema, swelling, tenderness, estrogen receptors 2 and 0, respectively; progesterone receptor 6
  - Breast biopsy : extensive intraductal and infiltrating duct carcinoma, with severe chronic inflammation; extensive lymphatic invasion present
  - Breast Skin biopsy: multifocal lymphatic permeation by carcinoma and perivascular chronic inflammation
- 07/25/85-10/22/85 **Aggressive Chemotherapy (Cytosan, Adriamycin, and 5-FU) – Yale New Haven Hospital:** reduction of inflammatory component, and tenseness went down a bit, but thickening under skin and edema remained
- 10/09/85 WBC count reduced from 114,000 to 16,000 before and after CAF
- 12/05/85-1/13/86 **Radiation therapy – Hunter Radiation Laboratory, Yale-New Haven Hospital -** twice daily for 6.5 weeks: 5100 rads to left breast and regional nodal areas, then 1500 rads through stepwise reduced fields: virtually no response
- 01/16/86 Following radiation therapy, brisk erythema outlining the i.m. field, very slight firmness remained in lower portion of left breast
- 10/18/85 **Bone Scan – Yale-New Haven Hospital #64036 -** single focus of isotope uptake in right anterior second rib, common secondary to trauma
- 01/28/86 **Macrobiotics** began with healing diet ~100% (M.Kushi/J. Kozinski, Counsellors; two Kushi Institute Way of Life Seminars): Home Remedies included Pearl Barley & Cabbage Plaster on remaining tumor in breast, Grated Daikon & Carrot dish to reduce weight from 170 to 125 lbs, Sweet Vegetable Drink for chronic hypoglycemia, and Ume-Sho-Kuzu for chronic constipation
- 03/18/86 **Mammogram – Gannet Health Center, Cornell University -** found less skin thickening in inferior outer portion of left breast, and no dominant mass or suspicious cluster of microcalcification;
- 03/28/86 **Natural Discharge -** remaining inflammation and skin thickening seemed to disappear after 2 months of diet following acute discharge of diarrhea, according to patient account
- 07/31/87- 08/04/87 Followed by physical examination and blood test: right breast fibrocystic with very fine granular consistency; left breast cystic, with cysts 1.5-2 cm in size; none of cysts appears to be unusual enough for doctor to want to biopsy; CEA 0.7
- Currently: Healthy with very active life as macrobiotic guide and researcher.

**Medical Records:** Yes

**#26 N. Arnold** is a male born 10/02/29

- 03/82 **CT Scan & Ultrasound - Baptist Hospital** - of gallbladder: gallstones
  - 07/28/82 **Surgery – Providence Hospital** – gallbladder surgery, and diagnosed with **Adenocarcinoma of the head of the Pancreas, with metastases to Lymph nodes and Liver** (3 cancerous lesions); only gallbladder surgically removed
  - 08/05/82 **Macrobiotic Diet** at home with cook Becky Koboda
  - 08/09/82 **CT Scan – Baptist Hospital** – pancreas and liver affected
  - 08/15/82 **Macrobiotic Consultation** with Michio Kushi in Boston – “You can recover.”
  - 08/17-19/82 **Chemotherapy Treatment #1 (3 drug) – Washington** – (wife & cook) – 5 treatments lead to severe nausea, weight loss, fatigue, muscle wasting
  - 08/25/82 **Chemotherapy Treatment #2 (5-FU only) – Baptist Hospital**
  - 08/27-29/82 **Macrobiotic Consultation** in Boston with Michio Kushi
  - 09/02/82 **Mental Imagery** began with Dr. Rothstein
  - 09/15/82 **Chemotherapy Treatment #3 (2 drug) – Baptist Hospital**
  - 09/20/82 **Hypnotherapy** began with Bob Sauer
  - 09/22-25/82 **Mouse Monoclonal Antibody Treatment – Fox Chase Cancer Center, American Oncological Hospital, Dr. Sears**
  - 10/06/82 **Stress Test & Left Ventricular Function Test – Providence Hosp** – okay
  - 10/07/82 **Chemotherapy Treatment #4 (3 drug) – Baptist Hospital**
  - 10/14/82 **Chemotherapy Treatment #5 (5-FU only) – Baptist Hospital**
  - 11/01/82 **CT Scan & Ultrasound – Baptist Hospital** – No change
  - 11/07-13/82 **Simonton (Imagery) Seminar** in Dallas with wife & cook
  - 11/15/82 **Ultrasound – Baptist Hospital** – No change
  - 11/19-20/82 **Macrobiotic Consultation** with Michio Kushi in Boston, wife & cook
  - 01/04/83 **Ultrasound (3 machines) – Baptist Hospital – Improvement in tumor size noted**
  - 02/11/83 **Ultrasound – Baptist Hospital – Improvement in tumor size noted**
  - 06/23/83 **Blood Test – Dr. Fudenberg in Charleston** – okay
  - Began to feel stronger, more vital, mental clarity improved, energy increased
  - 06/24/83 **CT Scan & Ultrasound – Baptist Hospital - “mildly qualified” ALL CLEAR!**
  - 11/22/83 **Ultrasound of Liver, Pancreas & Kidney – Baptist Hospital – all okay!**
  - 12/21/83 **CT Scan – Providence Hospital on new machine by Dr. Thomas – liver, pancreas & kidney: ALL CLEAR!**
  - Followed by blood, US, liver tests: all negative
  - 01/ /90 climbed Mt. Kilimanjaro, 19,600 ft
  - Currently: Good health, very active Philanthropist, with travel, tennis, scuba diving
- Medical Records:** Complete                      **Case History Summary:** *Cancer-Free*

#29 M. M. is a female born 05/03/46

- 08/25/83 **Right Back Skin Punch Biopsy – Roger Williams General Hospital – Pathology S-83-7401:** diagnosed with **Malignant Melanoma, invasive Clark's Level III, superficial spreading, with congenital mole measured depth of 2.20 mm on right scapula; very mild lymphocytic infiltrate is present beneath tumor**
- 09/13/83 surgery to remove mole; not wide margins
- 10/06/83 **Skin Biopsy – Massachusetts General Hospital – Pathology S83-4472:** **Malignant Melanoma, superficial spreading type, invasive to level III**
- 10/21/83 re-excision for wider margins
- 11/28/83 Excisional biopsy, junctional nevus on abdomen
- 06/06/84 **Punch right lower nape of neck/upper shoulder – Roger Williams General Hospital – Pathology S-84-5018:** **Malignant melanoma, metastatic**
- 06/15/84 **Harvard Medical School – Pathology S84-5018 A&B:** **Metastatic malignant melanoma to lymph nodes**
- 07/17/85 Removal by punch biopsy of halo nevi on left antecubital fossa and left shoulder
- 03/21/86 **Explorative Laparotomy and Resection – Massachusetts General Hospital – Pathology S86-F6806:** **Metastases to Small Bowel; removed 20" jejunum and 5 tumors; metastatic malignant tumor consistent with malignant melanoma in two segments (out of three) of smooth bowel; the examined resection margins of two segments of small bowel are free of tumor; 2 of 15 lymph nodes contained metastatic tumor; the tumor in one lymph node is necrotic. There was considerable lymphadenopathy throughout the small bowel mesentery but insignificant paraortic lymphadenopathy. Most of lymphadenopathy was left behind**
- Declined adjuvant chemotherapy after consultations at Massachusetts General Hospital, Dana-Farber Cancer Institute, and Yale University
- 05/01/86 **Macrobiotic Consultation** (M. VanCauwenberghe/L. Stanchich, Counsellors); diet began ~100%, and with Herbal remedies and Vitamin supplements (which were started years after beginning Macrobiotics)
- 02/02/88 **According to physician, "Had remarkable post-op course without recurrence despite no adjuvant chem. She has been on a rigid macrobiotic diet and attributes this to her success. She has gained weight and thrived in past 2 years. . . She became pregnant. Pregnancy was felt to pose definite risk of melanoma recurrence and therapeutic abortion was indicated." Patient subsequently had a healthy baby.**
- Followed by MRI and blood tests.
- Currently: Very active life as investment broker and mother. Appears symptom-free.

**Medical Records:** Yes

**Case History:** Autobiography *When Hope Never Dies*

#38 E. N. is a female born 08/10/39

- 04/16/80 **D&C Biopsy – Saint Barnabas Medical Center – Pathology S80-05235 / EM80-220 - Anaplastic, highly malignant Endometrial Stromal Sarcoma**  
04/21/80-08/04/82? **Chemotherapy – Saint Barnabas Medical Center - with Cytosan priming and Megace**
  - 05/07/80-06/04/80 **External Radiation Therapy – Saint Barnabas Medical Center – 18 MEV linac treated with 10 MEV Xrays, total dose of 4000 rads/20 fract/4 weeks**
  - 06/24/80 **Internal Radiation Implant – Saint Barnabas Medical Center – Fletcher-Suit tandem insertion with 15,15,15 and 10 mg of radium equivalent Cs 137 was placed for 72 hours delivering a supplemental rectal dose of 1560 rads.**
  - 08/05/80 **Bilateral Salpingo-Oophorectomy – Saint Barnabas Medical Center**
  - 07/21/82 **Skeletal Radiographic Study – East Essex General Hospital - partial compression fracture of L2 vertebral body**
  - 07/28/82 **Skeletal Scintigraphy – St. Barnabas Medical Center – A small focus of increased activity at the T9 vertebral level on the right side; there is apparent metastatic disease involving the body of the ninth dorsal vertebra; appears to be a slight compression deformity of the superior plate of T9**
  - 10/06-11/15/82 **External Radiation therapy – Saint Barnabas Medical Center - to spine began: Cobalt 60 split tumor dose to spine of 4000 rads in 10 fractions,41 days. Marked pain relief was achieved with increased leg strength and mobility.**
  - 10/15/82-02/16/83 **Chemotherapy – Saint Barnabas Medical Center – Bone metastases have caused patient a fair amount of pain. In addition, is able to ambulate with severe difficulty only. Previously, treated with Adriamycin and 5-FU. Since there has been failure, she is now admitted for chemotherapy with Adriamycin & CCNU; 240 mg daily of Megace; (spine cancer progressing still, and in both lungs)**
  - 01/18/83 **Thoracic Spine Scintigraphy – St. Barnabas Medical Center – Ill definition of pedicles of T9 especially on the left side; minimal displacement of the paraspinal pleural reflection; complete collapse of the body of L2; Also persistent visualization of bilateral pulmonary nodules consistent with metastasis**
  - 02/16/83 (approx.) **Macrobiotics began ~100% (S.Yamamoto/M.Snyder, Counsellors) with Hip Bath & Ginger Compress & Shiatsu Massage**
  - 02/19/85 **Chest and Lumbosacral Spine Radiographs – Med/Mark Radiology Center – No acute cardiopulmonary abnormalities are seen; no metastatic nodules are seen; there is a partial compression deformity of the body of T9; there is a scoliosis in the lumbar spine, convex to the right side secondary to the marked compressed fracture of the body of L2. No additional lytic or blastic lesions are seen. Tiny residual nodular density in anterior chest could represent a small focus of scarring from a larger nodule which had been present.(All tumors gone!)**
  - **Currently: Very active macrobiotic teacher & counsellor, with 7 grandchildren.**
- Medical Records: Yes    Case History: Autobiography *Recovery from Cancer***

#234 J. V., R.N. is a female born 03/02/50; mother died of lung cancer at similar age

- 04/10/95 **Chest X-ray No. 48385 Record No. 01695429 - Bedford-C.T. Center** revealed 2.1x3.3cm mass in inferior aspect of left hilum (Lung) and 5mm x 8mm subpulmonary nodule in right upper lobe of Lung, other nodules and pleural effusion;
- 04/13/95 **Flexible Bronchoscopy with Biopsies on Slides S-95-739 A to G, Cytology C95-383 to 388.** Poorly differentiated malignant epithelial cells, most consistent with anaplastic carcinoma
- 05/05/95 Cancer staged as Lymph Node N3, and Stage Grouping IIIB Any T N3 M0
- 04/11/95 **CT scan of the left retroperitoneum: 12.5 x 7 x 9.4cm cystic mass.**
- 04/19/95 **Laparoscopic-assisted surgery** to remove the retroperitoneal mass; pathology consistent with **poorly-differentiated adenocarcinoma.** More than likely, lung primary lesion; **Pathology Slide S-95-773 AF1&AF2.**
- 05/15/95 Consultation indicated **left apex pulmonary metastases growing rapidly,** now 8 x 7 cm compared to 2.5 x 3 cm in 3/95. **“Unfortunately, we are dealing with an incurable situation.**
- 05/16-17/95 **Chemotherapy** started once a month; Taxol 240 mg in 24 hrs; Carboplatin 450 mg in ½ hour after Taxol
- 05/20/95 Shortness of breath and pressure on left side: Plan to do thoracentesis of 1 liter; if fluid recurs, to place a chest tube. **“This should be good for palliative care. Unfortunately, her prognosis is not good.”**
- 05/23/95 **CT Scan of the abdomen and pelvis, x-ray No. 48385, 8 x 10 mm low density focus the right lobe of the liver; and a 3.3 x 4.9 cm left retroperitoneal mass arising from distal body/proximal tail of the pancreas**
- 05/25/95 **“Liver functions elevated across the board”:** SGOT 66 [15-37], SGPT 172 [30-65], ALK PHOS 236 [50-136] as of 05/21/95
- 06/08/95 **Macrobiotic Therapy** began; weight gain 72 lbs to 104 lbs on 2/24/01, Francois Roland, Carrie Wolf, Michio Kushi: Counsellors. Prayer/Med., Visualization
- 08/14/95 **Chest x-ray No. 48385: Bony lesions involving the left 5<sup>th</sup> and 7<sup>th</sup> ribs and right 10<sup>th</sup> rib, with a pathologic fracture through the left 7<sup>th</sup> rib**
- 08/14/95 **Ultrasound of the Abdomen x-ray No. 48385:** There is a hyperechoic solid nodule within right lobe of the liver measuring 1.7 x 1.8 x 1.7 cm
- 04/11/96 **CT Scan of the Abdomen and Pelvis x-ray No. 01695429: Small low density focus on the liver of 5-23-95 is not identified...no enlarged retroperitoneal nodes. Pulmonary & parenchymal mass in left lung of 11-7-95 is no longer seen.**
- 04/11/96 **Chest x-ray No. 01695429: Previously noted destructive lesion involving the left 5<sup>th</sup>, 7<sup>th</sup> and 10<sup>th</sup> ribs with fracture of the left 7<sup>th</sup> rib are not appreciated**
- 04/09/98 **Liver Functions:** SGOT 30 [1-38], SGPT 24 [1-49], ALK PHOS 82 [36-141]
- Patient feels Macrobiotics is responsible for remission; retired from Obstetrics Nursing.
- Currently: Normal activity as a homemaker and macrobiotic cook for the elderly

**Medical Records:** Yes

**Case History:** *One Peaceful World* newsletter

#236 J. M. is a female born 05/13/41

- 02/20/91 **CT Scan of Abdomen Order #334420 Norwood Hospital:** Extensive retroperitoneal lymphadenopathy that appears to extend into mesentery and also is retrocrural... appear most consistent with a primary lymphatic malignancy.
  - 02/26/91 **CT Scan of Abdomen, Rad #030263, Southwood Community Hospital:** Retrocrural and retroperitoneal lymphadenopathy - into the root of mesentery; in area of renal veins is large amorphous soft tissue mass consistent with lymphadenopathy
  - 03/01/91 **Pathologic Diagnosis for S91-03898 (previous surgicals S91-05134 and S89-01223), Brigham and Women's Hospital; and sub-labeled S91-20300, Southwood Hospital:** Left supraclavicular lymph node (from Southwood Community Hospital, Norfolk, MA) features most consistent with **Non-Hodgkin's Lymphoma**,
  - 03/01/91 **Hematopathology Report:** Findings compatible with a B cell lymphoma
  - 03/21/91 Dana-Farber New Patient Clinic Evaluation: **probably stage III nodular poorly differentiated lymphoma**
  - 03/25/91 **Bilateral Bone Marrow Biopsies S91-05134 (previous surgicals S91-03898 and S89-01223), Brigham and Women's Hospital:** from bilateral posterior iliac crest biopsy and aspirates, consistent with minimal marrow involvement
  - 04/01/91 **Dana-Farber staged disease as poorly differentiated nodular lymphoma Stage IV-A** with symptoms of pain; pulse **chlorambucil 16 mg/m<sup>2</sup>** by mouth
  - 10/30/91 **Abdominopelvic CT Exam # 18337, Tape #4326 Dana-Farber:** regression
  - 10/30/91 Dana-Farber follow-up after 8 cycles of chlorambucil: responded well both clinically and radiographically; still a few very small, scattered nodes. Stopping chemo.
  - 01/ /92 **Macrobiotics began – Marc van Cauwenberghe/Evelyne Harboun** with ginger compress, hip bath, shiatsu massage
  - 01/27/92 **CT Scan #19050 Abdominopelvic:** CT showed continued minimal retroperitoneal adenopathy with no interval change since last exam.
  - 04/29/92 Dana-Farber follow-up. Low-grade lymphoma appears to be silent at this point. "I told her and her husband **that her lymphoma appears to be in remission at this point, although it is likely in the future that it will return.**"
  - 05/19/95 Bubinak follow-up: Intermittent night sweats, weight gain 5 lbs, multiple small cervical lymph nodes previously noted. However, palpable lymph nodes in both axillae, the largest being a little over 1 cm; also some shotty nodes in both groins.
  - 05/22/95 Alkaline Phosphatase 124 [21-88]; BUN 21 [7-18]; UA 2.4 [2.6-6.0]
  - 05/12/97 Bubinak follow-up: continues eating a nutritious diet; no evidence of malignant lymphoma. Blood tests have never reflected recurrences.
  - 09/ /98 **CT Scan & X-ray: Remission**
  - Patient feels Macrobiotics is responsible for complete and continuing remission.
- Currently: Normal activity as macrobiotic counselling coordinator at Kushi Institute,  
**Medical Records: Yes**

# Withdrawal/Redaction Marker

## Clinton Library

| DOCUMENT NO.<br>AND TYPE | SUBJECT/TITLE                   | DATE       | RESTRICTION |
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| 001c. bio                | Michio Kushi (partial) (1 page) | 03/26/2001 | b(6)        |

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## Biography Synopsis MICHIO KUSHI

(b)(6)

Michio Kushi was born in Wakayama-ken, Japan on May 17, 1926, and graduated from Tokyo University Graduate Course, Faculty of Law. He came to the United States in 1949 as a student to pursue World Federation, and studied in Columbia University. While he studied about World Peace, he became aware that the most fundamental way for human destiny to be healthy, peaceful and spiritual is dependent upon their biological, psychological, and social nature: caused by the environment, daily food, and lifestyle.

- (1) Thus in 1960 and thereafter, with his wife Aveline Kushi, he has dedicated his life to pioneer the Natural, Organic Food Movement. Through their education, many natural foods and natural lifestyles have spread. Brown rice and other organic whole grains, unrefined noodles and pasta, mochi, soy products such as tofu, soymilk, natto, miso & soy sauce; sea vegetables; and sea salt are some examples of products that have been spread by their many students.
- (2) Furthermore, during the same period (1960-1970), they introduced and taught Oriental Medicine, Acupuncture, Moxibustion, Do-In, Polarity, Palm Healing, Meditation, and the way of Spiritual Development. And Futon-making, Tea Ceremony, Aikido, Noh Drama, Flower Arrangement have been first introduced by them to Eastern part of U.S.
- (3) From 1970 to the present, thousands of students of their teaching have been encouraged to develop the natural organic food movement, Macrobiotic Art of Cooking, and many fields of natural approaches to health. Through their counselling, seminars, lectures, and several dozens of books and booklets, many people have gained their wellbeing, in America, Europe, Japan, Asia, South America, and Australia.
  - International Network – over 30 countries; called One Peaceful World Network
  - Publications – Books, booklets, journals, videos, translated published & in 13 languages
  - International lectures and seminars are yearly covering 4 to 5 countries
  - Kushi Institute, Leland Road, P.O. Box 7, Becket, MA 01223, [www.kushiinstitute.org](http://www.kushiinstitute.org)  
TEL: 1-800-97-KUSHI is a basic educational center, receiving every year a few thousand participants in educational programs; its educational network is international.
  - Based upon his Macrobiotic approach, research studies have been made by Harvard University Channing Laboratories & the Framingham Heart Study Center (Heart and Blood); Boston University (AIDS); Tulane University and the University of Minnesota and others (Cancer); etc.
- (4) Recognition & Awards (examples)
  - In 1994 United Nations Society of Writers: Award for Excellence
  - In 1999 American Museum of National History, Smithsonian Institution: Kushi Family Collection
  - In 1999 U.S. House of Representatives: Resolution of Recognition.

March 26, 2001

# Mindful Practice

Ronald M. Epstein, MD

**R**EFLECTION AND SELF-AWARENESS help physicians to examine belief systems and values, deal with strong feelings, make difficult decisions, and resolve interpersonal conflict.<sup>1,2</sup> Organized activities to foster self-awareness are part of many family medicine residency programs<sup>3</sup> and some other residency<sup>4,5</sup> and medical school curricula.<sup>5-8</sup> Exemplary physicians seem to have a capacity for critical self-reflection that pervades all aspects of practice, including being present with the patient,<sup>9</sup> solving problems, eliciting and transmitting information, making evidence-based decisions, performing technical skills, and defining their own values.<sup>10</sup>

This process of critical self-reflection depends on the presence of mindfulness. A mindful practitioner attends, in a nonjudgmental way, to his or her own physical and mental processes during ordinary everyday tasks to act with clarity and insight.<sup>11-15</sup> This article first describes the nature of professional knowledge, competence, and values and then presents current thinking about the philosophical, psychological, and practical aspects of mindfulness. It also explores how mindfulness is integral to the professional competence of physicians and suggests ways to cultivate mindfulness in medical training. In doing so, however, I recognize that *mindful practice*, although supported by empiric observation of clinical practice,<sup>16-21</sup> educational research,<sup>22-26</sup> philosophy,<sup>11,27</sup> and cognitive science,<sup>11,28-30</sup> is fundamentally personal and subjective.

See also pp 830 and 881.

Mindful practitioners attend in a nonjudgmental way to their own physical and mental processes during ordinary, everyday tasks. This critical self-reflection enables physicians to listen attentively to patients' distress, recognize their own errors, refine their technical skills, make evidence-based decisions, and clarify their values so that they can act with compassion, technical competence, presence, and insight. Mindfulness informs all types of professionally relevant knowledge, including propositional facts, personal experiences, processes, and know-how, each of which may be tacit or explicit. Explicit knowledge is readily taught, accessible to awareness, quantifiable and easily translated into evidence-based guidelines. Tacit knowledge is usually learned during observation and practice, includes prior experiences, theories-in-action, and deeply held values, and is usually applied more inductively. Mindful practitioners use a variety of means to enhance their ability to engage in moment-to-moment self-monitoring, bring to consciousness their tacit personal knowledge and deeply held values, use peripheral vision and subsidiary awareness to become aware of new information and perspectives, and adopt curiosity in both ordinary and novel situations. In contrast, mindlessness may account for some deviations from professionalism and errors in judgment and technique. Although mindfulness cannot be taught explicitly, it can be modeled by mentors and cultivated in learners. As a link between relationship-centered care and evidence-based medicine, mindfulness should be considered a characteristic of good clinical practice.

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Consider a situation that I recently faced with a patient who required an expanded view of professional knowledge and mindful reflection to achieve a satisfactory resolution. A 42-year-old mother of 2 small girls, despondent over job difficulties, was contemplating genetic screening for breast cancer as she approached the age at which her mother was diagnosed as having the same disease. Aside from the difficulties in taking an evidence-based approach to assigning quantitative risks and benefits to the genetic screening procedure (How much should I trust the available information?) and uncertainty about the effectiveness of medical or surgical interventions (Would knowing the results make a difference, and, if so, to whom?), the case raised important relationship-

centered questions about values (What risks are worth taking?), the patient-physician relationship (What approach would be most helpful to the patient?), pragmatics (Is the geneticist competent and respectful?), and capacity (To what extent is the patient's desire for testing biased by her fears, depression, or incomplete understanding of the illness and tests?).

For me, book knowledge and clinical experience were insufficient. I had to rely on my personal knowledge of the

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**Table 1.** Professionally Relevant Awareness and Knowledge

| Levels of Awareness                |  |
|------------------------------------|--|
| Tacit (subsidiary awareness)       |  |
| Explicit (focal awareness)         |  |
| Types of Knowledge                 |  |
| Propositional                      |  |
| Personal                           |  |
| Process (including metaprocessing) |  |
| Know-how                           |  |

patient (Is she responding to this situation in a way concordant with her previous actions and values?) and myself (What values and biases affect the way I frame this situation for myself and for the patient?) to help us arrive at a mutual decision. These reflective activities applied equally to the technical aspects of medicine (How do I know I can trust the interpretations of medical tests?) and the affective domain (How well can I tolerate uncertainty and risk?). An attitude of critical curiosity,<sup>31</sup> openness, and connection<sup>17,32,33</sup> allowed us to defer the decision and reconsider testing once the immediate crises had passed.

### Explicit and Tacit Knowledge

Clinical judgment is based on both explicit and tacit knowledge.<sup>34-36</sup> Medical decision making, however, is often presented only as the conscious application to the patient's problem of explicitly defined rules and objectively verifiable data.<sup>34,37,38</sup> This form of explicit knowledge can be quantified, modeled, readily communicated, and easily translated into evidence-based clinical practice guidelines.

Seasoned practitioners also apply to their practice a large body of knowledge, skills, values, and experiences that are not explicitly stated by or known to them.<sup>34</sup> This knowledge may constitute a different kind of evidence, which also has a strong influence on medical decisions. In everyday life, examples of tacit knowledge abound. Riding a bicycle involves judgments about speed, orientation, and position that are rarely made conscious except when something goes amiss. Similarly, an experienced neurologist can recognize Parkinson dis-

case within moments of meeting a patient, before processing the objective and subjective data to support it. During this preattentive processing,<sup>39</sup> the brain rapidly scans a wide array of perceptions, detects conspicuous features, and relegates some information to the background, all before the content of the perception is analyzed. Clinical skills, such as the depth of insertion of an otoscope, the manipulation of the fetal head during a delivery, and the realization that the patient has given sufficient information to diagnose major depression involve tacit knowledge and preattentive processing.

While explicit elements of practice are taught formally, tacit elements are usually learned during observation and practice.<sup>40</sup> Often, excellent clinicians are less able to articulate what they do than others who observe them. Nor do they appreciate all of the biases in their own reasoning processes.<sup>41</sup> *Subsidiary awareness*<sup>35</sup> is a term that describes how the practitioner makes accessible the flow of unprocessed experience and tacit knowledge.

In the words of Anais Nin, "We don't see things as they are, we see things as we are."<sup>42</sup> Evidence-based medicine offers a structure for analyzing medical decision making, but it is not sufficient to describe the more tacit process of expert clinical judgment.<sup>43</sup> All data, regardless of their completeness or accuracy, are interpreted by the clinician to make sense of them and apply them to clinical practice.<sup>44</sup> Experts take into account messy details, such as context, cost, convenience, and the values of the patient.<sup>36,43,45,46</sup> Physician factors such as emotions,<sup>47</sup> bias,<sup>48</sup> prejudice,<sup>49</sup> risk-aversion,<sup>50-53</sup> tolerance for uncertainty,<sup>54,55</sup> and personal knowledge of the patient also influence clinical judgment.<sup>50-55</sup> Most of the processes described above remain relatively unconscious to the practitioner.

Clinical judgment is a science and an art.<sup>36</sup> Even those who are uncomfortable with the notion of tacit knowledge recognize that it is impossible to make explicit all aspects of professional competence.<sup>43</sup> Evidence-based

decision models are very powerful tools, but clinicians do not always use them, especially in complex situations.<sup>30,56</sup> Information necessary to construct explicit models is frequently incomplete or conflicting. Some important tacit knowledge about the patient, such as personality, simply does not fit into predefined categories. To clinicians, these models may resemble computer-generated symphonies in the style of Mozart—correct but lifeless.

### Professional Knowledge and Self-awareness

Eraut<sup>57,58</sup> defines 4 types of professionally relevant knowledge, each of which can be tacit or explicit (TABLE 1). The most familiar is propositional knowledge, or what most people call fact: theories, concepts, and principles, usually acquired from books, electronic media, or instructors. Self-awareness of what one does not know and the appreciation for the transient nature of facts can direct ongoing learning.

Knowledge acquired through experience, or personal knowledge, is a collection of information, intuitions, and interpretations that guides professional practice.<sup>35</sup> Consider the following example. Returning from vacation, I saw one of my patients who was infected with human immunodeficiency virus and said to the resident caring for him, "Mr Charles looks worse. Looks like he might have adrenal insufficiency." The personal knowledge exemplified in this scenario differs from an anecdote because it is contextualized. I can say that Mr Charles looks worse because I know him as a person, not just because I know about him, and because I recognize a pattern of disease (weakness and skin color change). This knowledge enters into my mind in an inductive, impressionistic way, providing the gestalt or feel of a clinical situation in addition to the propositional facts.<sup>29</sup> However, confusion between personal knowledge and anecdotal information results in both being neglected and discounted during medical training. An example of the uncritical application of a decontextualized anecdote is when a physician who after

missing a diagnosis of colon cancer, subsequently overtests all of his patients. In contrast, if he had raised tacit personal knowledge to awareness, it could have been subjected to critical reflection.

Process knowledge is knowing how to accomplish a task,<sup>59</sup> such as gathering information, performing procedures, making decisions, and planning for the future.<sup>58</sup> Process knowledge also includes metaprocessing, or the process of reflection on one's own mental processes. This is particularly important in practice, because "we do not observe nature as much as we observe nature exposed to our method of questioning."<sup>60</sup> Metaprocessing might be called thinking about thinking or feeling about feelings. It is both a concrete action (such as the modification in a trajectory of light in a mirror) and an act of self-observation in which the mind attends to its own actions (including the subject who is performing those actions). Metaprocessing allows the physician to uncover areas of unconscious incompetence,<sup>61</sup> the blind spots wherein a physician might not know his or her deficiencies. Fortunately, clinicians can often readily identify these blind spots and gain insight into the influence of the observer, for example, when they review their own videotaped patient visits.<sup>62,63</sup>

Eraut's fourth type of professionally relevant knowledge, know-how, is knowing how to get things done. A resident working in a new setting may know that a diagnostic test is important, but may not know that the test will happen sooner with a friendly call to the radiologist. Learning the steps necessary for getting something done is important in professional development of physicians, but it is often relegated to the informal<sup>64</sup> or hidden<sup>24,26</sup> curriculum.

### Mindful Practice

Mindfulness is a logical extension of the concept of reflective practice.<sup>4,12,14</sup> The mindful practitioner is present in everyday experience, in all of its manifestations, including actions, thoughts, sensations, images, interpretations, and emotions.<sup>12,13,65</sup> Mindfulness "leads the

mind back from theories, attitudes and abstractions . . . to the situation of experience itself,"<sup>11</sup> which prevents us from "falling prey to our own prejudices, opinions, projections, expectations" and enables us to free ourselves from the "straightjacket of unconsciousness."<sup>66</sup> Mindfulness is attending to the ordinary, the obvious, and the present. Johann Sebastian Bach is reported to have said, when asked how he found melodies: "The problem is not finding them, it's—when getting up in the morning and out of bed—not stepping on them."<sup>67</sup>

Although mindfulness is a practice that derives from a philosophical-religious tradition,<sup>12,14,15</sup> the underlying philosophy is fundamentally pragmatic<sup>13</sup> and is based on the interdependence of action, cognition, memory, and emotion. These connections represent a relatively new idea in neuroscience research.<sup>28,68</sup> Western approaches to the understanding of mental processes have historically separated mental activity from action in the world, and the schism between behavioral and psychodynamic psychology has reinforced some of this separation. However, in the East,<sup>11,14</sup> and in phenomenological traditions in the West,<sup>27</sup> philosophy has linked cognition to emotion, memory, and action in the world.

The goals of mindful practice are to become more aware of one's own mental processes, listen more attentively, become flexible, and recognize bias and judgments, and thereby act with principles and compassion (TABLE 2). Mindful practice involves a sense of "unfinishedness,"<sup>73</sup> curiosity about the unknown and humility in having an imperfect understanding of another's suffering. Mindfulness is the opposite of multitasking. Mindfulness is a quality of the physician as person, without boundaries between technical, cognitive, emotional, and spiritual aspects of practice.

Mindful practitioners have an ability to observe the observed while observing the observer in the consulting room. This process, not often discussed in medical practice, is considered essential to musicians, whose task is to perform and listen at the same time,

**Table 2.** Characteristics of Mindful Practice

|                                                                       |
|-----------------------------------------------------------------------|
| Active observation of oneself, the patient, and the problem           |
| Peripheral vision                                                     |
| Preattentive processing                                               |
| Critical curiosity                                                    |
| Courage to see the world as it is rather than as one would have it be |
| Willingness to examine and set aside categories and prejudices        |
| Adoption of a beginner's mind                                         |
| Humility to tolerate awareness of one's areas of incompetence         |
| Connection between the knower and the known                           |
| Compassion based on insight                                           |
| Presence                                                              |

attending simultaneously to the technical challenges, emotional expression, and overall theoretical structure of the music.<sup>69</sup> The accomplished musician performs midcourse corrections of finger movements, compares the sound produced with the imagined sound, and, at the same time, brings expressive spontaneity to the performance. However, if the musician were to attempt to control each finger movement while simultaneously analyzing the harmonic structures, rhythms, and silences that constitute expressive playing, playing would become impossible. Thus, focal awareness on the music is accompanied by subsidiary awareness<sup>35</sup> of technique and analysis—a mix of peripheral vision and semiautomatic action that is highlighted only when the unexpected or difficult occurs.

In medicine, consider what a resident in a busy pediatric emergency department might do when he is unable to determine whether an ear examination is normal or abnormal and the attending physician is not immediately available. The resident has several options, consideration of which could be conscious or unconscious. The resident weighs the consequences of misdiagnosis for the patient, the humiliation of having to call an otolaryngology resident out of the clinic, the loss of self-esteem by having to admit incompetence, and the pride in being strong enough to admit his need to learn. An unmindful practitioner who is conscious of the dilemma might judge or blame himself or others. He might have

his course of action on an external standard of correctness or on expedience. However, little would be learned, and he would be no better prepared for the next situation. A mindful conscious approach would be to cultivate awareness not only of the correct course of action but also of the factors that cloud the decision-making process. The mindful practitioner is mentally and technically better prepared for the next situation.

The object of mindfulness can apply to any aspect of medical practice and within any domain of tacit or explicit knowledge. Intrapersonal self-awareness helps the physician be conscious of his or her strengths, limitations, and sources of professional satisfaction. It helps the individual avoid blind spots, such as a physician who, because his or her parent was an alcoholic, avoids discussions of alcohol with patients. It may clarify deeply held values and motivations for becoming a physician. Interpersonal self-awareness, or social intelligence,<sup>70,71</sup> allows physicians to see themselves as they are seen by others and helps to establish satisfactory interpersonal relationships with colleagues, patients, and students. Awareness of metaprocessing allows physicians to be aware of their own clinical reasoning, including the necessary connections between cognition, memory, and emotional processing.<sup>28</sup> Self-awareness of learning needs allows physicians to recognize areas of unconscious incompetence and to develop a means to achieving their learning goals.<sup>61</sup> Ethical self-awareness is the moment-to-moment cognizance of values that are shaping medical encounters. Technical self-awareness is necessary for self-correction during procedures such as the physical examination, surgery, computer operations, and communication.

Often reflection is prompted by a critical incident involving an error, a difficult situation, or an unexpected result of one's actions.<sup>25,72,73</sup> At other times, reflection is prompted by the maturing of an idea rather than by a discrete external event. However, many of these events go unnoticed by all but the most creative thinkers. The discoveries of peni-

cillin, radiation, and the benzene ring were not accidents, but rather the result of someone making what had been considered an outlier (a tainted Petri dish) into data (a useful medication).

Mindfulness enables the practitioner to use a wider set of perceptual resources. The fluidity of mind that can maintain some constant subthreshold awareness of preattentive and subsidiary processes has been described as a "beginner's mind."<sup>12</sup> A beginner's mind is open and allows for new diagnostic and therapeutic possibilities, as may happen when a patient meets a new physician. By contrast, the expert's mind narrows possibilities, using prior experience to delimit and confine observations. Langer<sup>13</sup> describes mindfulness as a state of "could be," welcoming uncertainty rather than trying to avoid it. Difficult patients might then become interesting patients; unsolvable problems might become avenues for research. Critical curiosity shows the limits of categories and helps create more meaningful ones. For example, the recognition of panic disorder as a common cause of chest pain might help physicians recategorize these patients from symptom amplifiers<sup>74</sup> to patients with a serious and treatable illness. Expertise is often well served by beginner's mind, especially in new, unfamiliar, or stressful situations.

Mindfulness implies examining the relationship between the knower and the known as suggested in the "I-Thou" relationship of Martin Buber<sup>75</sup> or the "connected knowing" of ideas, people or things, suggested by Belenky and colleagues.<sup>33</sup> Knowledge, then, does not exist independently but rather in relationship to the one observing and using it. Theories are seen as fragile approximations rather than reality itself.<sup>76</sup> Suchman and Matthews<sup>17</sup> have described this as the *connexional* dimension of medical practice, in which there is a tacit bond between patient and physician that transcends professional roles.

#### **Mindlessness: Gaps Between Knowledge, Values, and Actions**

Physicians make moment-to-moment value-laden decisions that entail cog-

nitive and emotional factors. They decide how much effort to expend in pursuit of knowledge, how much pain medication to prescribe, how much time to spend with each patient, and when to return patients' telephone calls. These rapid decisions, usually based on personal knowledge, level of skill, efficiency, and values, ultimately result in actions. Thus, objectives for the practice of medicine calling on physicians should include the ability to perform or knowledge about important aspects of medical care<sup>77</sup> as well as the requirement to actually use those practices in daily work.

Self-knowledge is essential to the expression of core values in medicine, such as empathy, compassion, and altruism. To be empathic, I must witness and understand the patient's suffering and my reactions to the patient's suffering to distinguish the patient's experience from my own. Then I can communicate my understanding and be compassionate, to use my presence to relieve suffering and to put the patient's interests first. Perhaps lack of self-awareness is why physicians more often espouse these values than demonstrate them<sup>78-81</sup> and why they tend to be less patient-centered<sup>82</sup> and confuse their own perspectives with those of the patient<sup>1,80</sup> in situations that involve conflict and strong emotions.

Curiosity is central both to caring about the patient and to solving problems.<sup>63</sup> Fitzgerald<sup>16</sup> describes a trainee who reported a patient as having had a history of "BKA" (below-the-knee amputation) without noting that the patient, in fact, had both feet. A transcriptionist had mistranscribed DKA (diabetic ketoacidosis) and the assertion went unchallenged. The student's lack of curiosity, or overconcreteness, led to mistaking the chart for the patient. Similarly, caring requires an interest in the patient as a person rather than as an abstraction of disease.<sup>84,85</sup> For example, Stetten<sup>18</sup> described how his physicians were uninterested in his adaptation to blindness while they attempted to treat his macular degeneration; they saw the disease but not the person.

Mindlessness accounts for many deviations from professionalism, which seem to occur more often in emotionally charged situations, during situations of uncertainty, and under pressure to resolve problems. For example, many medical students and residents, and presumably practitioners as well, report findings that were not observed and do not seek correction for errors.<sup>20</sup> Actions diverge from professional knowledge and values because of attempts to be efficient, a desire to please supervisors, feelings of embarrassment, and a sense of being overwhelmed.<sup>21,22,82,86,87</sup> Practitioners may not think to apply knowledge gained in a classroom context (such as an ethics course) in a stressful clinical environment. Deviations often involve avoidance of difficult issues, rationalization, externalization, or frank denial rather than the healthy processing of emotional feelings toward patients.<sup>88,89</sup>

### Levels of Mindful Practice

To guide physicians' professional development, I would like to propose 5 levels of mindfulness, each of which subsumes the previous level and is subject to verification in future observational studies (TABLE 3). At the extreme of mindless practice, the practitioner's response is denial (level 0). By making the problem "out there," the practitioner may avoid responsibility and reflection or describe the situation (or the patient) in ways that are contrary to the evidence.

Level 1 describes practitioners who do not necessarily use reflection but take some responsibility for the situation and solve it by conforming to an external standard of behavior. For example, a practitioner might deal with his attraction to a patient by reciting a rule, such as "sexual intimacy with patients is wrong," but may not seek understanding of the factors that put physicians at risk for misconduct.<sup>86</sup>

Level 2 describes medical decision analysis based on the assumption that explicit cognitive models guide physician behavior and the key to change is the transfer of information. While cu-

riosity and reflection are required to generate hypotheses and important questions, physicians at this level ignore personal knowledge, tacit knowledge, and emotions. Level 3 includes curiosity about feelings, thoughts, and behaviors without attempting to suppress or label them as good or bad. By including emotions and personal knowledge, the clinician has more tools available to promote patient care. Level 4, insight, has 3 facets: understanding the nature of the problem, understanding how one attempts to solve it, and understanding the interconnectedness between the practitioner and the knowledge that he or she possesses.<sup>15</sup> Insight facilitates the calibration of mental processes, in addition to correction of the external problem. Finally, practitioners at level 5 can use their insight to generalize, overcome similar challenges in the future, incorporate new behaviors and attitudes, express compassion, and be present.

### Becoming Mindful

Recent articles<sup>1,5,90</sup> have described a variety of ways for becoming more self-aware. Individually, practitioners might keep a journal, practice meditation, review videotapes of sessions with their patients, and use learning contracts. In medical education, self-evaluation forms for students and residents have been important adjuncts to the evaluation process. Learners can compare their perceptions with those of a teacher or mentor. Peer evaluations have been useful in bringing awareness to aspects of professionalism and social skills for students, residents, and practicing physicians.<sup>91,92</sup> Critical incident reports written by practitioners about mistakes,<sup>20,93</sup> impairment,<sup>94</sup> ethical dilemmas,<sup>95</sup> and difficult situations can be discussed in small group settings and raise awareness about common situations and one's reactions to them. Sharing of family information and cultural background, using genograms or illness narratives, can help practitioners learn about the expectations, biases, strengths, and tendencies that influence clinical care.<sup>96-99</sup> These approaches, historically focused

Table 3. Levels of Mindfulness

| Levels | Characteristics                             |
|--------|---------------------------------------------|
| 0      | Denial and externalization                  |
| 1      | Imitation: behavioral modeling              |
| 2      | Curiosity: cognitive understanding          |
| 3      | Curiosity: emotions and attitudes           |
| 4      | Insight                                     |
| 5      | Generalization, incorporation, and presence |

on the emotional aspects of medical practice and the patient-physician relationship, usually consist of exercises separated in space and time from actual clinical practice. Mindfulness training goes one step further. It applies to all aspects of practice, from looking up references to performing physical examinations, from tying sutures to giving bad news.

Mindfulness can link evidence-based and relationship-centered care and help to overcome the limitations of both approaches.<sup>37,43,100</sup> The success of evidence-based approaches depends on the ability of the practitioner to decide which issues require further investigation and how to frame a question. These, in turn, require that the practitioner identify his or her own biases and the influences of the patient-physician relationship on framing of the question to investigate. This personal knowledge should also be considered a form of evidence and could be integrated into decision making to incorporate patients' preferences. Evidence-based data that are not specific to one patient-physician relationship would then be applied in a more mindful way.

Seminars about difficult topics such as HIV management, delivery of bad news, medical mistakes, professionalism, and adherence to treatment can foster reflection and raise practitioners' awareness of their own emotions and biases, while, at the same time, attending to the practicalities of the patient's problem.<sup>101,102</sup> However, the ability to reflect in a classroom environment is not equivalent to reflection in a stressful clinical environment. For example, ethics courses might increase students' knowledge base and improve their ability to solve difficult problems, but ethics courses do not necessarily produce physicians whose be-

havior is more ethical than it would be otherwise. Clinician-mentors can help students put ideas into action by modeling a moment-to-moment awareness of their own knowledge and emotions that inform their decisions when values are on the line. Professionals can learn to articulate their personal knowledge by observing their own actions (How do I respond to uncertainty? How do I present risks? How do I self-correct when doing a difficult technical procedure?) Professional knowledge is defined, then, not by its validity, but by how it is used.<sup>23</sup>

There is an inherent paradox in teaching or writing about mindfulness. The teacher's task is to invoke a state of mindfulness in the learner, and, thus, the teacher can only act as a guide, not a transmitter of knowledge. In a recent example of a resident about to face a dreaded follow-up visit with an angry patient who thought that earlier treatment of his hepatitis C might have prevented his end-stage cirrhosis, the mentor's role was complex. He had to help the resident identify his feelings of guilt and defensiveness that might interfere with communicating effectively with the patient, determine the risks and benefits of liver transplantation, and explore the patient's wishes regarding end-of-life care. The mentor's approach was to help the resident identify how he psychologically prepares for each visit with a patient, a "centering" process that had been previously tacit, which usually is not explicit for most practitioners, and to use it more effectively. The mentor helped the resident observe himself, effecting a transition from unconscious incompetence to critical reflection and allowing him to come to a satisfactory decision with the patient based on both objective evidence and personal knowledge.

Barriers to mindfulness are numerous in medical training, even in reformed curricula. Fatigue, dogmatism, and an emphasis on behavior (rather than on consciousness)<sup>103</sup> close the mind to ideas and feelings. Unexamined negative emotions lead to emotional distance and arrogance. McWhinney identified 3 additional barriers: unexamined negative emotions, fail-

ure of imagination, and literal-mindedness (I. R. McWhinney, MD, oral presentation, London, Ontario, October 6, 1995). Failure of imagination limits the curiosity that is the first step in any process of inquiry. Concrete literal mindedness may serve simple diagnostic processes well, but impedes creative problem solving and limits the physician's view of the patient. Lack of opportunities to learn how to become mindful in practice and the lack of forums to deal with fears and anxieties create further barriers. Finally, some clinicians may fear that mindfulness is the same as excessive self-absorption that would delay necessary clinical actions. They would need to be educated that navel-gazing is antithetical to mindful practice, which has as its goal clarity and attention to the tasks at hand.

### Conclusions

Mindfulness, critical reflection, learning, and patient care all "begin with the self as the first, but not the only, object of knowledge."<sup>104</sup> Mindful practice extends beyond examining the affective domains and involves critical reflection on action, tacit personal knowledge, and values in all realms of clinical practice, teaching, and research. Mindfulness is a discipline and an attitude of mind. It requires critical informed curiosity and courage to see the world as it is rather than how one would have it be. Mindful practitioners tolerate making conscious their previously unconscious actions and errors. The goal of mindfulness is compassionate informed action in the world, to use a wide array of data, make correct decisions, understand the patient, and relieve suffering.

Mindful practice requires mentoring and guidance. Recognition of one's limitations and areas of incompetence can be emotionally difficult and can invite avoidance in even highly motivated practitioners. Although mindfulness is an individual and subjective process, each of us can identify practitioners who embody these attributes, learn from them, and identify unique ways of being self-aware. Educators can take on the task of help-

ing trainees become more mindful by explicitly modeling their means for cultivating awareness.

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