

# The Macrobiotic Diet as Treatment for Cancer: Review of the Evidence

By Joellyn Horowitz, MD

As a requirement for graduation, all medical students at the University of California, San Diego, must complete an Independent Study Project (ISP). Original, independent, creative, and scholarly activities, the ISPs are a cornerstone of UCSD medical education. As an Assistant Clinical Professor on the faculty of UCSD School of Medicine, Mitsuo Tomita, MD, chaired Joellyn Horowitz's ISP Committee. He encouraged and mentored her in writing this paper. Dr Tomita is also the Director of Continuing Medical Education for KP San Diego. He has been actively involved in medical education and points out that there is ample opportunity for other physicians to get involved in supervising medical students in ISPs at UCSD or in a variety of other ways.

*This research was done while Dr Horowitz was a fourth-year medical student at the University of California School of Medicine, San Diego, California.*

*When I was working at the Veterans Administration Medical Center in Mission Valley as part of an outpatient medicine clerkship, I had an encounter with a very interesting patient, a 63-year-old man who had recently been diagnosed with prostate cancer. His oncologist, who had seen him two weeks before my visit with him, had left a note in his medical chart indicating that the patient should be scheduled for surgical prostatectomy as soon as possible. Despite several attempts by the oncologist to explain the risks and benefits of various treatment options, the patient had told the oncologist during that visit that he was going to try the macrobiotic diet instead of having surgery to cure his cancer. He objected to possible incontinence of urine after the procedure.*

## What is Macrobiotics?

According to Michio Kushi, who is probably the world's best-known proponent of macrobiotics, macrobiotics is "the universal way of life with which humanity has developed biologically, psychologically, and spiritually and with which we will maintain our health, happiness, and peace."<sup>1</sup><sub>p26</sub> This definition shows how the word "macrobiotics" has come to mean more than just a way of eating: Macrobiotics is also a philosophy and a cultural movement.

More recently, macrobiotics has come to mean a dietary regimen used to prevent and treat many diseases; in this sense, its more philosophical aspects are somewhat de-emphasized. In addition to the dietary provisions of macrobiotics, however, other applications of macrobiotic principles—eg, increased emphasis on physical activity; minimized exposure to pesticides, other chemicals, and electromagnetic radiation; and stress reduction—may also be beneficial for cancer prevention.<sup>1,2</sup> Because the philosophy of macrobiotics promotes the concept that phenomena are universal and interrelated, the practice of macrobiotics engenders respect for the spiritual nature of life—a view that bolsters the morale of cancer patients.<sup>1</sup> Patients adhering to this lifestyle necessarily take an active role in their own treatment, ie, by making necessary lifestyle modifications. Actively participating in their own treatment restores a sense of power that is sometimes squelched by conventional treatment, much of which is inherently disempowering because it can cause overwhelming pain and debilitation. Emphasizing patient spirit and power may be important for cancer prevention and patient survival as well as for improving the quality of life for people with cancer.<sup>3,4</sup>

*I found this patient to be a very pleasant gentleman whose wit and humor were evident from the moment I sat down to interview him. I could also see an intelligence behind his sparkling eyes, so it came as no surprise to find that he wished to actively participate in making decisions about his treatment. Immediately after learning of his diagnosis, he began researching his illness on the Internet, in the library, and in the medical section of his local bookstore. He had decided to try the macrobiotic diet after reading a 1982 book titled *Recalled by Life: The Story of My Recovery from Cancer, Dr Anthony Sattilaro's autobiographical account of overcoming metastatic prostate cancer.*<sup>7</sup>*

## Macrobiotic Dietary Guidelines

The macrobiotic diet first introduced to the United States by George Ohsawa consisted of ten progres-

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sively restrictive stages; in the final stage, only brown rice and water were permitted.<sup>5</sup> Not surprisingly, this version of the diet was associated with reported cases of scurvy, anemia, low blood protein, low blood calcium levels, emaciation, renal failure, and death.<sup>6</sup> Kushi<sup>1</sup> reformulated and popularized macrobiotics in the United States by emphasizing a high-complex-carbohydrate, low-fat diet that is tailored to meet individual needs, depending on age, sex, activity level, personal needs, and environment.

The diet consists of five categories of foods (with recommended weight percentage of total food consumed):

- Whole cereal grains (40%-60%), including brown rice, barley, millet, oats, wheat, corn, rye, and buckwheat; and other less common grains and products made from them, such as noodles, bread, and pasta.
- Vegetables (20%-30%), including smaller amounts of raw or pickled vegetables—preferably locally grown and prepared in a variety of ways.
- Beans (5%-10%), such as azuki, chickpeas, or lentils; other bean products, such as tofu, tempeh, or natto.
- Regular consumption of sea vegetables, such as nori, wakame, kombu, and hiziki—cooked either with beans or as separate dishes.
- Foods such as fruit, white fish, seeds, and nuts—to be consumed a few times per week or less often.<sup>1,2</sup>

The standard macrobiotic diet avoids foods that include meat and poultry, animal fats (eg, lard and butter), eggs, dairy products, refined sugar, and foods containing artificial sweeteners or other chemical additives. All recommended foods are preferably organically grown and minimally processed. Consumption of genetically modified foods is also discouraged.<sup>1</sup> For people with cancer, these restrictions may be absolute for a period of time until some recovery has occurred. Several personal accounts<sup>7,8</sup> describing individual applications of the diet detail the initial period of the diet—in which all animal foods and fruit are avoided—followed by periods in which these foods are reintroduced into the diet.

### Potential Risks of the Macrobiotic Diet

Cases of infants with symptoms of malnutrition (including deficiency of vitamins B<sub>12</sub> and D) have been reported in the medical literature.<sup>9-11</sup> The possibility of such types of nutritional deficiency has been documented in systematic surveys of groups of infants and families who followed a macrobiotic lifestyle.<sup>12-18</sup> These studies of nutritional status—primarily in infants or in growing children—have formed the basis for most warnings against use of macrobiotic diets to treat cancer.<sup>19</sup> Assuming that

any appropriate treatment minimizes nutritional deficiency, many physicians believe that imposition of the dietary restrictions is potentially dangerous for patients who are already losing alarming amounts of weight. In contrast, these nutritional restrictions have been proposed to help slow progression of cancer by starving the rapidly reproducing cells responsible for the disease.<sup>20</sup>

*Dr Sattilaro was a 49-year-old physician when he was diagnosed with prostate cancer, which had already metastasized to several bones. His prognosis was very poor—he had multiple metastases—so he decided to treat himself with the macrobiotic diet. After a year of adhering to the diet, results of Dr Sattilaro's follow-up examination showed complete resolution of the bone metastases. He continued the diet and remained cancer-free at followup three years later.<sup>7</sup>*

*Even before the patient relayed to me Dr Sattilaro's story, I was familiar with it, having learned of it while researching the macrobiotic diet during my second year of medical school. At that time, I was taking an elective class in complementary/alternative medicine (CAM). The class exposed me to similar stories of patients who recovered from cancer after using macrobiotic dietary therapy. These stories appeared in such books as Dr J Kohler's (1979) *Healing Miracles from Macrobiotics*;<sup>8</sup> M Kushi's (1983) *The Cancer Prevention Diet*;<sup>2</sup> V Brown and S Stayman's (1984) *Macrobiotic Miracle: How a Vermont Family Overcame Cancer*;<sup>34</sup> H Faulkner's (1993) *Physician, Heal Thyself*;<sup>35</sup> E Nussbaum's (1992) *Recovery from Cancer*;<sup>36</sup> and *Cancer-Free: 30 Who Triumphed Over Cancer Naturally (1991)* by The East West Foundation with A Fawcett and C Smith.<sup>37</sup>*

### Does the Macrobiotic Diet Have Anticancer Properties?

According to the 1997 report produced by the American Institute for Cancer Research and the World Cancer Research Fund, increasing daily consumption of vegetables and fruit from 250g to 400g may lead to 20% fewer cases of cancer worldwide.<sup>21</sup> An increasing collection of evidence suggests that consumption of whole grains can reduce the risk of cancer at various anatomic sites.<sup>22,23</sup> Studies of rats have suggested that consumption of sea vegetables (dietary seaweed) may decrease the risk of breast cancer.<sup>24,25</sup> Given that macrobiotics endorses a diet high in consumption of vegetables and whole grains, a logical assumption is that the practice of macrobiotics should also reduce the risk for cancer. However, few studies specifically suggest macrobiotics as an effective cancer prevention

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method. A few studies<sup>26-32</sup> comparing two populations of women—those who eat a vegetarian or a macrobiotic diet and those who eat a typical US diet—suggest differences in estrogen metabolism between these two populations and, that a vegetarian or macrobiotic diet may affect estrogen metabolism in ways that reduce the risk for hormone-dependent forms of cancer, including breast and prostate cancer.

The data are even more limited regarding macrobiotics as effective treatment for patients who already have cancer (ie, the focus of the present literature review). Much of the evidence is purely anecdotal, consisting of individual cases reported by those affected. Only one published study attempted to obtain more systematic information regarding efficacy of the macrobiotic approach to cancer, and that study was severely hampered by its retrospective design.<sup>33</sup> No prospective or randomized controlled clinical trials on the subject have been published.

The only published study in the peer-reviewed medical literature was conducted by Gordon Saxe while a graduate student at Tulane University under the direction of James Carter.<sup>33</sup> The study had two components: one that focused on primary pancreatic cancer and another that focused on advanced prostate cancer. All study subjects had sought advice about macrobiotics from a certified counselor. Records maintained by macrobiotics counselors were used to identify 101 people who had seen a counselor for pancreatic cancer during the period extending from 1980 through 1984. Attempts were made to recontact these people, and 28 of them (or their next of kin) were reached. Of these 28 respondents, 23 reported that a macrobiotic diet had been followed for at least three months. Median survival of the 23 persons who had followed a macrobiotic regimen was 13 months after diagnosis; in contrast, median survival was three months for pancreatic cancer patients enrolled in the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program.<sup>33</sup>

Unfortunately, the Tulane report was flawed: Com-

parison of survival times was biased in favor of macrobiotics. Most important, the 23 persons in the macrobiotic series must have had to survive at least three months to be included. As noted in the SEER data, 50% of all people diagnosed with pancreatic cancer are dead at three months after diagnosis. Lack of information on other factors that may influence survival in both the macrobiotic and control groups also limits interpretability of the Tulane study.

The prostate cancer component of the Tulane study was similarly flawed: The nine patients with prostate cancer who adhered to a macrobiotic diet had a median survival of 228 months compared with a median survival of 72 months in matched control subjects. The study did not clearly identify the criteria by which control subjects were matched or how they were selected.<sup>33</sup>

*I told the patient about the existing data and referred him to the available literature. A month later, the same patient opted to receive the prostatectomy surgery. The cancer had not yet spread to local lymph nodes at that time. Although not eating a strictly macrobiotic diet when I last saw him (four months after the surgery), he was continuing to eat a diet high in vegetables and low in animal fat because he believed that this regimen gave him more energy. His postoperative urinary incontinence was improving with use of Kegel exercises, and his oncologist was expecting the cancer to resolve completely.*

**Summary**

Given the anecdotal and flawed nature of the few data currently available, the efficacy of the macrobiotic diet as a treatment for cancer is impossible to determine at this time. We should also keep in mind (in the case of the 63-year-old man described above, for example) that conventional screening tools for identifying prostate cancer have not been definitively shown either to enhance or to extend life. Moreover, screening for prostate cancer (ie, when and how often to screen, which tools to use) is a contentious topic among medical experts: On the basis of their individual preferences and experience, each physician with whom I have had the opportunity to work has offered different advice on the subject. Nonetheless, although the medical literature currently available does not show that macrobiotics extends the life of cancer patients, we must keep in mind that few data are available and that further investigation is warranted. ❖

**Acknowledgment**

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<b>Practice Tips</b>
Macrobiotics has come to mean more than just a way of eating and includes increased emphasis on physical activity; minimized exposure to pesticides, other chemicals, and electromagnetic radiation; and stress reduction.
The diet consists: whole cereal grains, vegetables, beans, sea vegetables, fruit, white fish, seeds, and nuts.
According to the 1997 report produced by the American Institute for Cancer Research and the World Cancer Research Fund, increasing daily consumption of vegetables and fruit from 250g to 400g may lead to 20% fewer cases of cancer worldwide.

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