



**Beyond Conventional
Cancer Therapies**

Breast Cancer

Complementary and integrative approaches offer you choices in breast cancer treatment. This booklet explores the research behind these approaches.

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Integrative breast cancer care has a remarkable amount to offer you. It can add to your treatment, help with side effects, benefit your quality of life, help you get well again, and reduce your risk of recurrence. Psychologically and spiritually, it can have transformative effects.

Let's be clear: integrative cancer care means skillful choices in both conventional and complementary cancer therapies.

The very first step is deciding what your goals are. Your goals will guide you in choosing both conventional and complementary therapies. No matter what conventional therapies you choose, our 7 Healing Practices can be beneficial in many ways—physical, emotional, mental and spiritual. They are the foundation to strengthen you for rigorous conventional therapies, reduce side effects, build health and help reduce the risk of recurrence.

Beyond the 7 Healing Practices you will find many specific integrative therapies to explore. Don't let the number of choices deter you. We've arranged them in an easy order to consider, starting with those with the greatest safety, efficacy, and ease of access. Also, don't overlook our special category of Off-label, Overlooked or Novel Cancer Approaches (we call them ONCAs). They have a lot to offer even if lifestyle changes seem too hard at this point.

I've known quite a few 20-year survivors of metastatic breast cancer—and I have known hundreds of women who have far outlived a metastatic prognosis.

Don't try to take all this in one bite. Take small bites, and come back as you are ready for more.

We do this for you. We hold you in our thoughts and prayers,

Michael Lerner

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Key Points

- Integrative cancer care means skillful choices in both conventional and complementary cancer therapies.
- Breast cancer is many different diseases. Not only will conventional treatment vary from one person to the next, but integrative breast cancer care will vary
- Getting the diagnosis right is key to selecting your treatment approach. We recommend getting a second pathology reading, especially if the initial report includes any uncertainty, and considering further diagnostic evaluation.
- Pathology reports and other diagnostic testing will help inform your treatment options (see box below), prepare you for possible side effects and guide you in steps to prevent or minimize these effects.
- The American Society of Clinical Oncology has endorsed the breast cancer clinical practice guidelines of the Society of Integrative Oncology, validating integrative breast cancer treatment approaches.
- Available integrative and complementary treatment approaches include integrative protocols and plans and traditional medicine systems.
- We provide examples of different published integrative approaches to advanced breast cancer care.
- The 7 Healing Practices listed all promote wellness and tend to make your body terrain less hospitable to the development and progression of cancer. Some practices address cancer symptoms and side effects. These practices:
 - ◇ Eating Well
 - ◇ Moving More
 - ◇ Managing Stress
 - ◇ Sleeping Well
 - ◇ Creating a Healing Environment
 - ◇ Sharing Love and Support
 - ◇ Exploring What Matters Now
- Beyond the 7 Healing Practices, complementary therapies and lifestyle practices can be useful to enhance treatment effects, improve quality of life and possibly even extend life for those with breast cancer.
- We present natural products and off-label, overlooked and novel cancer approaches (ONCAs) in five categories:
 1. Good evidence of efficacy and safety, with easy access
 2. Good evidence of efficacy and safety but limited access
 3. Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols
 4. Limited evidence of efficacy, or significant cautions, or may interfere with treatments (any combination of these three criteria)
 5. Evidence of no efficacy or may be dangerous
- Therapies and approaches are evaluated according to their effects:
 1. Treating the cancer
 2. Managing side effects and promoting wellness
 3. Reducing risk
- Medical advocate and breast cancer survivor Gwendolyn Stritter, MD, offers advice on regional anesthesia for mastectomy, hormone therapy before surgery, de-escalation of DCIS treatment
- People with breast cancer who are undergoing some types of chemotherapy or targeted agents, or who receive radiation therapy to the chest, are at risk for heart damage. We offer guidance on taking care of your heart during breast cancer treatment.
- Brief information regarding breast reconstruction is provided.

Diagnostic Testing

Advanced and non-standard diagnostic tests, some specific for breast cancer, are available. These tests can often identify specific therapies that will be most effective. Some require pre-planning for collection and shipping of live tissue samples. See BCCT's Diagnostic Approaches webpages and the section "De-escalation of DCIS Treatment" on page 35.

Integrative Care in Breast Cancer

Before investigating integrative care in breast cancer, we recommend reviewing integrative cancer care in general. See the BCCT website.

Breast cancer is many different diseases. Not only will conventional treatment vary from one person to the next, but integrative breast cancer care will vary and should be individualized. For instance, some therapies that enhance specific immune functions may actually heighten cancer growth and progression in some types of breast cancer while inhibiting growth and progression in other types.¹

BCCT advisor Debu Tripathy, MD, professor of medicine and chair of the Department of Breast Medical Oncology at the University of Texas MD Anderson Cancer Center, explains some of the reasons why women with breast cancer want an integrative approach to their care. For one, many physicians and patients are concerned about the all-too-slow incremental advances in conventional breast cancer care and the lack of attention to patients as individuals.

"Moreover," Dr. Tripathy adds, "the diagnosis of breast cancer is increasingly recognized as affecting the psychological, emotional, and spiritual balance, leading many to question whether these dimensions can also be addressed therapeutically by integrative modalities."²

Dr. Tripathy points out that "although advances have clearly been made in earlier detection and better outcomes for early-stage breast cancer, these have come at the cost of significant side effects due to therapies that typically include surgery, radiation therapy, chemotherapy and hormonal therapy. Advanced breast cancer remains incurable even though steady improvements in survival have been achieved with these standard therapies as well as newer targeted biological therapies."⁵²

Since types of breast cancer and individual body terrain vary considerably, complementary therapies should be used with a licensed clinician experienced with these

therapies for people with cancer, preferably breast cancer. A clinician who knows the indications and cautions of complementary therapies and individualizes care is more likely to offer safe, effective therapies.

Personalizing Your Treatment

Identifying your specific cancer type is critical to treatment decisions. The reading of pathology reports is often a weak link in cancer treatment, with the error

rate in some hospitals unacceptably high. If the diagnosis is wrong, the treatment is often wrong. Many recommend a second reading of the report—preferably from outside your medical center. Some cancer centers do this routinely—especially if they are not certain of the reading.

In addition to the pathology report, further diagnostic testing (see box below), can inform treatment. They may

also help you choose the complementary therapies and lifestyle approaches that may enhance your conventional treatment, manage side effects and improve your quality of your life.

You can also prepare your home team for what to expect. You can plan ahead to line up the support you may need. You can anticipate side effects and work to minimize them even before treatment starts. Finally, learning what to expect allows you to prepare mentally and spiritually to catalyze your resilience for facing the weeks and months to come.

Our goal is to help you live as well as you can for as long as you can using the optimal combination of conventional, complementary and integrative therapies and approaches. We don't recommend you throw every therapy available into your treatment basket. Instead, we hope that you will pull together an integrative care team who will help you assemble the therapies that best serve your individual needs. That is how the best integrative oncologists do it—and we wish the best for you.

Not only will conventional treatment vary from one person to the next, but integrative breast cancer care will vary and should be individualized.

A starting place for the science and conventional therapies:

National Cancer Institute:

- About Cancer, www.cancer.gov/about-cancer
- Breast Cancer—Patient Version, www.cancer.gov/types/breast

types/breast

- Breast Cancer—Health Professional Version, www.cancer.gov/types/breast/hp
- Cancer.net: Breast Cancer, www.cancer.net/cancer-types/breast-cancer

Clinical Practice Guidelines

The Society for Integrative Oncology (SIO), the leading organization of its kind, has conducted a monumental review of randomized control trials of complementary therapies in breast cancer care.³ From this review, SIO created integrative care guidelines.

Within one year, the American Society for Clinical Oncology (ASCO) endorsed these guidelines. See the ASCO endorsement in Integrative Therapies During and After Breast Cancer Treatment: ASCO Endorsement of the SIO Clinical Practice Guideline, <https://www.asco.org/practice-guidelines/quality-guidelines/guidelines/supportive-care-and-treatment-related-issues>.

The SIO reviewed randomized controlled trials published 1990-2015. Researchers were looking at “the use of integrative therapies for specific clinical indications during and after breast cancer treatment, including anxiety/stress, depression/mood disorders, fatigue, quality of life/physical functioning, chemotherapy-induced nausea and vomiting, lymphedema (swelling), chemotherapy-induced peripheral neuropathy, pain and sleep disturbance.” Recommendations from this review:³

- Music therapy, meditation, stress management and yoga for anxiety/stress reduction
- Meditation, relaxation, yoga, massage and music therapy for depression/mood disorders
- Meditation and yoga to improve quality of life
- Acupressure and acupuncture for reducing CINV (chemotherapy-induced nausea and vomiting)
- A lack of strong evidence supporting the use of ingested dietary supplements or botanical agents as supportive care and/or to manage breast cancer treatment-related side effects

When these guidelines were presented at the 2017 SIO annual meeting, integrative oncologist Donald Abrams, MD pointed out that the guidelines seemed conservative and that experienced integrative oncologists are safely and effectively using evidence-informed therapies that were not included in the SIO

recommendations, such as some nutraceuticals and botanicals in advanced breast cancer.⁴

The presenter replied that these guidelines are more conservative because only randomized controlled trials were reviewed, and the guidelines are intended to serve the wider audience of oncology clinicians who are not necessarily specialized in integrative oncology care. Dr. Abrams reminded the audience that lack of evidence of effect is not the same as evidence of no effect, and that the safer the therapy that has plausible basis for benefit, the lower the burden of proof.

The Society for Integrative Oncology has created integrative care guidelines which have been endorsed by the American Society for Clinical Oncology.

Further Clinical Practice Guidelines

National Comprehensive Cancer Network:

- Professional Guidelines (Login required), www.nccn.org/professionals/physician_gls/pdf/breast.pdf
- Guidelines for Patients:
 - ◇ Breast Cancer Noninvasive, www.nccn.org/patients/guidelines/stage_0_breast/index.html
 - ◇ Breast Cancer Early-Stage, www.nccn.org/patients/guidelines/stage_i_ii_breast/files/assets/basic-html/page-1.html
 - ◇ Breast Cancer Locally Advanced, www.nccn.org/patients/guidelines/stage_iii_breast/index.html
 - ◇ Breast Cancer Metastatic, www.nccn.org/patients/guidelines/stage_iv_breast/index.html
- American Society of Clinical Oncology:
 - ◇ Breast Cancer, www.asco.org/practice-guidelines/quality-guidelines/guidelines/breast-cancer

Integrative Plans, Protocols and Medical Systems

Breast Cancer Plans, Protocols and Programs

- Abrams & Weil (chapter 21, Integrative Medicine and Breast Cancer)⁵
- Alschuler & Gazella complementary approaches⁸
- Block program⁶
- Chang strategies (case study)⁷
- Cohen & Jefferies risk reduction⁸
- Lemole, Mehta & McKee breast cancer protocol⁹
- McKinney breast cancer protocol¹⁰

Traditional Medicine Systems

Traditional Chinese Medicine

- Traditional Chinese medicine (TCM) uses botanical and animal products, trace elements, diet and exercise in addition to acupuncture/acupressure, which may be more familiar to many Western patients.
- Most controlled studies of TCM in cancer investigate acupuncture. Lab and animal evidence

also indicates that several Chinese herbals have activity against human breast cancer cell lines.

Clinical evidence is also accumulating. Examples:⁵²

- ◇ The herb *Scutellaria barbatae* (About Herbs) has proapoptotic (promoting programmed cell death) activity in patients with advanced metastatic breast cancer.
- ◇ A review of randomized trials of Chinese herbs for breast cancer suggests that they can improve nausea, vomiting and fatigue.¹¹
- ◇ Green tea, commonly used in Chinese medicine, is associated with a lower risk of breast cancer, with some evidence of therapeutic effects.¹²

Ayurvedic Medicine

According to Dr. Debu Tripathy, no formal studies have evaluated Ayurvedic medicine as a system approach in breast cancer. However, some of the herbs used in Ayurveda—such as curcumin (turmeric) and withafarin A¹³—have shown activity against breast cancer cell lines in lab studies.⁵²

Three Examples of Integrative Approaches

A number of integrative oncology care programs and clinics employ complementary approaches to enhance conventional treatment and/or minimize side effects. Three programs have published studies of their integrative approach in caring for those with advanced breast cancer. We provide a description of their research as examples of different integrative approaches to advanced breast cancer care.

The Block Center for Integrative Cancer Treatment (BCICT)

The Block Center, founded by Keith Block, MD, an integrative oncologist, offers a comprehensive cancer treatment program combining conventional treatments—often delivered in novel ways, such as according to circadian rhythms—along with nutrition and supplementation, fitness and mind-spirit instruction. The program is highly individualized and provides care to people with any kind of cancer.

A collaborative research group looked at survival data for a consecutive case series of 90 women with

advanced metastatic breast cancer who received this comprehensive treatment program at the Block Center. Findings:⁴

Despite a higher proportion of younger and relapsed patients, survival of metastatic breast cancer patients at the center was approximately double that of comparison populations and possibly even higher compared to trials published during this period. Explanations for the advantage relative to conventional treatment alone may include the nutritional, nutraceutical, exercise and psychosocial interventions, individually or in combination; self-selection of patients cannot be ruled out.

The researchers propose that the doubling of survival in those treated with the integrative program may be physiologically based and not due to self-selection. Patients in this program followed a low-fat diet, which has been demonstrated in randomized controlled trials to improve relapse-free survival. Other specific program elements that may have helped with either prolonged survival or treatment tolerance:

- Increased intakes of antioxidants and phytochemicals
- Improved body composition and weight reduction due to increased exercise
- Reduction of stress hormones with mind-spirit interventions
- Lower overall dietary intake of fat
- Higher intakes of vegetables, fiber and omega-3 fatty acids

The Block Center program also evaluates and supports quality of life and mental/spiritual responses to cancer and treatment. "Systematic training is provided in relaxation strategies, cognitive-behavioral interventions, and other approaches to enhance coping skills, pain management and sleep hygiene in order to manage the challenges associated with a cancer diagnosis and to mitigate side effects of chemotherapy, while improving treatment tolerance."⁴ Being able to tolerate treatment better also means that women may be able to complete the treatment, improving their response and benefits.

The Block Program is explained in great detail in his patient-friendly book: *Life over Cancer: The Block Center Program for Integrative Cancer Care*.

Block Center Program Supplements

Supplements used in the 2009 study of advanced metastatic breast cancer patients:⁴

Used by all patients:

- Fish oil
- Multivitamin-mineral supplement designed for cancer patients
- Mushroom-based immune supplement
- A phytochemically rich vegetable and fruit drink

Other supplements frequently used (individualized):

- Mixed carotenoids

- Melatonin
- Calcium D-glucarate
- Reishi mushrooms
- Green tea
- IV vitamin infusions during chemo to prevent treatment-related nutrient deficiency: Vitamins A, C, D, E, K, B-vitamins; calcium, magnesium and trace minerals

Bastyr Integrative Oncology Care: A Naturopathic Oncology Approach

Naturopathic oncologists are oriented to deliver integrative oncology care in tandem with their conventional oncology colleagues. Naturopathic oncology care is complementary rather than alternative to conventional care, with complementary therapies

used in conjunction with conventional treatments.

See our discussion of naturopathic medicine and oncology at Integrative Medical Systems in Practice in the US and Canada.

BCCT advisor Leanna Standish, ND, is a Fellow of the American Board of Naturopathic Oncology (FABNO) and works at the research institute of the prestigious naturopathic school Bastyr University. Dr. Standish has been leading research studies looking at integrative therapies that naturopathic oncologists provide, as well

as the costs and outcomes of that care.

In one study published in 2017, the Bastyr Integrative Oncology Research Clinic (BIORC), in collaboration with Fred Hutchinson Cancer Research Center, followed 324 women of all stages of breast cancer who received integrative oncology care from board-certified naturopathic oncologists in the Seattle area. The most common integrative therapies prescribed:

- *Trametes versicolor* (turkey tail mushroom)
- Mind-body therapies

Despite a higher proportion of younger and relapsed patients, survival of metastatic breast cancer patients at the Block Center was approximately double that of comparison populations and possibly even higher.

- Acupuncture
- Injectable therapy (mistletoe, vitamin B complex, IV vitamin C, IV artesunate and IV nutrition and hydration)

The costs ranged from \$1594 per year for early stage breast cancer up to \$6200 per year for stage 4 breast cancer patients. About 20 percent of that cost was out-of-pocket, with the remainder paid for by insurance or written off by the university. As the researchers point out, “regardless of the stage of breast cancer, integrative [naturopathic] oncology care is low-cost relative to conventional oncology costs. Standard cancer treatments may cost as much as \$10,000 to \$40,000 per month.”¹⁴ The extra cost of adding complementary therapies to conventional care may be outweighed by the benefits to patients: better quality of life, symptom management and in some cases improved response to conventional treatment.

Since opening in 2009, BIORC has enrolled 704 patients in a separate prospective outcomes study treating breast, lung, colon, pancreatic, brain and skin cancers. One-third are patients with stage 4 cancer. During the study, the natural products used have been intravenous (IV) high-dose vitamin C, IV artesunate, oral curcumin, green tea and *Trametes versicolor* (turkey tail mushroom). Dr. Standish shared with us: “Our median overall survival was excellent compared to other published phase III clinical trials.”¹⁵ Their results for breast cancer have not yet been published.

Bastyr Breast Cancer Study Supplements

No one “Bastyr protocol” exists, as researchers continue to investigate and refine approaches. Supplements used in one Bastyr protocol for breast cancer:¹⁰

- IV artesunate (*Artemisia annua*)
- IV ascorbic acid (vitamin C)
- *Trametes versicolor* (turkey tail mushroom)
- Tetrathiomolybdate for copper chelation
- Curcumin
- Bromelain
- Quercetin
- Low-dose naltrexone

Dr. Kleef: Hyperthermia, Immunology and Integrative Oncology Program

Dr. Ralf Kleef trained in Germany at an integrative-oriented medical school as well as at Sloan Kettering Cancer Research Institute as a postdoctoral immunology fellow. He has a clinic in Vienna, Austria, which is on the “short list” of preferred European cancer clinics from Ralph Moss, a leading writer on integrative cancer treatments who publishes The Moss Reports. Dr. Kleef uses what he calls “Lodoco” (low-dose combination therapy), the use of lower doses of chemotherapy and immunotherapy in combination with complementary therapies such as hyperthermia and artemisinin. He uses chemosensitivity and molecular testing to identify which drugs and natural products are more likely to be active against an individual’s cancer.

In addition to using his integrative approach with people with minimal residual disease, he is also getting early promising results in people who were heavily pre-treated for cancer and come to him with stage 4 disease.

Dr. Kleef has co-authored and published a case study of a woman with stage 4 triple-negative breast cancer with lung metastasis. Kleef treated this 50-year-old woman with low-dose immune checkpoint inhibitors, hyperthermia and interleukin-2. According to Kleef, “She went into complete remission of her pulmonary metastases with transient WHO I-II diarrhea and skin rash. The patient remained alive for 27 months after the start of treatment, with recurrence of metastases as a sternal mass, and up to 3 cm pleural metastases.” Kleef acknowledges that this is only one case, and urges that there be further research using this protocol, which consists only of [European] approved drugs and treatments.¹⁶

Several individuals who have been treated at Kleef’s clinic have reported to us their favorable experiences, including patient advocate and breast cancer survivor Lindsay McDonell. See her story on the BCCT website: Lindsay McDonell: Diagnostic Testing.

For a more thorough description of Dr. Kleef’s program, see the Moss Reports (purchase required) and Dr. Moss’s blog post: Lower-dose immune drugs as effective as higher doses.

Integrative Therapies in Breast Cancer

7 Healing Practices: The Foundation

The 7 Healing Practices listed here all promote wellness and tend to make your body terrain less hospitable to the development and progression of cancer. Some practices address cancer symptoms and side effects.

Adding Up Benefits

Studies show that while a single lifestyle practice—such as a healthy diet or exercise—show benefit, combining practices is even more powerful.¹⁷

Breast cancer patients who adopted a healthier diet and regular exercise lowered their risk of relapse by nearly half, an effect seen in both obese and nonobese women.¹⁷

As David Servan-Schreiber explains: “In patients who already have cancer, there is a ‘dose effect’ relationship between regular application of practices that improve lifestyles and the degree of protection from the disease. The more involved these patients are in changing their ‘terrain,’ the greater the benefits.”¹⁸

The Ecology of Breast Cancer

The Ecology of Breast Cancer: The Promise of Prevention and the Hope for Healing by BCCT advisor Ted Schettler, MD, MPH, is one of the best sources of information on lifestyle and environment in relation to breast cancer risk and outcomes.

Dr. Schettler proposes that individual body terrain is shaped

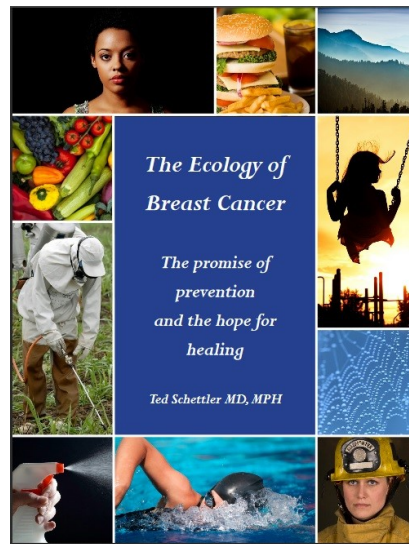
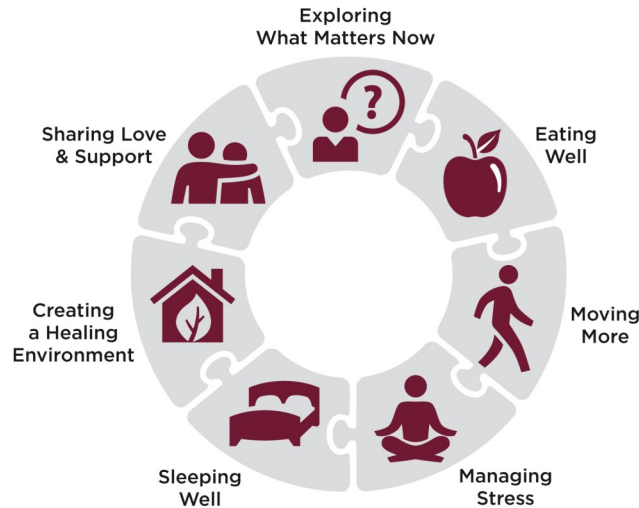
across the lifespan by all levels, from individual to societal. “Efforts to change the design of that terrain can continue throughout life, so that breast cancer or its recurrence after initial treatment is less likely.”¹⁹

Eating Well

The foods you eat, plus how they're grown and prepared, have a substantial impact on your body terrain.

Key Points on Healthier Dietary Patterns

- Beginning in childhood, emphasize eating fruits and vegetables, especially leafy greens and those that are deep orange or yellow.
- Limit total fat to 20 to 35 percent of dietary calories. Different types of dietary fat have different health impacts.
- Increase eating foods containing omega-3s.
- Decrease eating foods that contain high amounts of omega-6s, such as vegetable oils from corn, sunflower, safflower, soy and cottonseed, and processed and fast foods (which often use these oils). Replace these with monounsaturated fatty acids such as extra virgin olive oil.
- Eat low-fat dairy products instead of high-fat options.
- Eat less red meat and avoid processed meats.
- Include traditional soy foods, including tofu and fermented miso and tempeh in your diet, starting in childhood if possible (but not during infancy). Traditional, whole forms of soy are best. Infant soy



formula, supplements and highly processed soy foods—such as soybean oil, textured vegetable protein or soy protein isolate used in processed foods—are *not* recommended.

- Limit refined carbohydrates such as white flour, white rice, juices and sugar. Favor complex carbohydrates from whole grains, beans, vegetables and fruits.
- Include seaweed (sea vegetables) and edible mushrooms in your diet.
- Dr. Keith Block recommends eating medicinal mushrooms, such as shiitake, but also writes: "It is difficult to obtain clinically meaningful quantities of mushroom phytochemicals from even the healthiest diet, which is why I recommend getting them in the form of extracts."¹

Treating the Cancer

No single component has been found to clearly influence breast cancer development or outcome.⁵² However, several nutrient and food-preparation factors have been connected to breast cancer growth and spread:

- **Vegetables and fruits:** Greater consumption of vegetables and fruits has been associated with lower mortality.¹⁷
- **Carotenoids:** Higher baseline blood levels of carotenoids, such as beta-carotene and lycopene, are associated with improved outcomes following diagnosis and treatment.
- **Antioxidants:** Use of supplements during chemotherapy or radiation is controversial, with some proposing they counteract the anticancer effect of conventional therapy. A reasonable recommendation based on current data would be to avoid high-dose antioxidants, particularly during chemotherapy and radiation therapy, but to consider them long-term at either lower and more physiological doses, or ideally, through a balanced diet rich in vegetables and whole grains.⁵²

An investigation involving the Women's Healthy Eating and Living study concluded that a diet with higher vegetable, fruit, and fiber and lower fat intakes than the

five-a-day diet may reduce risk of additional breast cancer events, but only in women not experiencing hot flashes.²¹

Reducing Risk

Eating a healthy diet low in fat after a breast cancer diagnosis was linked to a 25 percent reduced risk of recurrence in post-menopausal women in the Women's Intervention Nutrition Study.²²

However, another large study (Women's Healthy Eating and Living study, WHEL) included pre- and post-menopausal women and combined low fat intake with higher levels of fruits, vegetables, and fiber. It found no difference in breast cancer recurrence or mortality

between groups.²³ However, a subsequent meta-analysis, including a secondary analysis of the WHEL study, found a potential benefit of a reduced-fat diet on risk of recurrence, even though not on survival.²⁴

The meta-analysis includes a recommendation to look at

overall dietary patterns as well as physical activity in regard to weight.²⁴

As weight gain is a common occurrence following breast cancer diagnosis, and survivors are at increased risk for comorbid conditions such as cardiovascular disease and diabetes, achieving a healthy weight through reductions in caloric intake and increases in energy expenditure through a combination of diet, exercise, and behavioral strategies is encouraged.

The American Cancer Society recommends a dietary composition of 45–65 percent energy from carbohydrate, 10–35 percent of energy from protein, and 20–35 percent of energy from fat. Reducing the energy density of the diet by limiting portions of energy-dense foods, such as high-fat and sugary items, is emphasized, in addition to increasing intake of low-energy-dense foods, such as vegetables and fruits.²⁴

Several nutrient and food-preparation factors have been connected to breast cancer growth and spread.

Nutrient and food-preparation factors connected to breast cancer:

- **Micronutrients:**
 - * Carotenoids: Higher baseline blood levels of carotenoids, such as beta-carotene and lycopene, are associated with lower breast cancer risk.
 - * Proanthocyanidins, found in berries and grapes, are associated with lower inflammation, a contributor to breast cancer risk.²⁵
 - * DHA and EPA: These two omega-3 fatty acids, found in fish and fish oils, may be associated with reduced risks of breast cancer.
- **Trans fats:** The link between trans fats and breast cancer risk and earlier all-cause mortality is fairly consistent.
- **Omega-6 fatty acids:** In most studies, although not all, higher amounts of omega-6 fatty acids compared to omega-3s are associated with higher risk of breast cancer. In many people, perhaps in part as a result of genetically-determined fatty acid metabolism, higher omega 6:3 ratio is associated with higher levels of inflammation.
- **Food preparation:**

Charring food (such as on the grill or in a broiler) produces known carcinogens such as heterocyclic amines, which are associated with breast cancer risk.
- **Soy:** Eating traditional soy products is associated with lower breast cancer risk, and eating them in childhood is associated with even lower breast cancer risk than soy in adulthood. Large studies of breast cancer survivors confirm that eating soy in whole food sources (not supplements or highly processed foods) is not associated with increased breast cancer proliferation, doesn't interfere with tamoxifen and appears to increase the effectiveness of anastrozole.
- **Seaweed and edible mushrooms:** Eating some varieties of seaweed²⁶ and mushrooms²⁷ may be associated with lower breast cancer risk.
- **Insulin sensitivity:** Improving insulin sensitivity in

those with insulin resistance or elevated fasting blood sugar may be helpful not only in reducing breast cancer risk, but also in reducing risk of recurrence and breast cancer-related death in those diagnosed with breast cancer.

- **Refined carbohydrates:** Diets with excessive refined carbohydrates cause repetitive spikes in insulin and increase the risk of diabetes, which increases the risk of breast cancer. Elevated insulin levels also promote breast cancer.

See the BCCT page Eating Well and chapter 3 of Dr. Ted Schettler's *The Ecology of Breast Cancer: Diet, nutrition, and breast cancer.*

Moving More

Movement recommendations:

- The World Cancer Research Fund and the American Institute for Cancer Research both recommend 60 minutes of moderate-intensity or 30 minutes of vigorous-intensity exercise daily to reduce cancer risk. The American College of Sports Medicine recommends that healthy adults and cancer survivors engage in a minimum of 30 minutes of moderate-intensity exercise five days a week for health promotion.
 - Even modest amounts of activity provide benefit, so starting slowly with lower intensity exercise and gradually increasing the intensity and duration is a good approach for people who have not been very active.
 - Most studies show that the benefits of physical activity are heightened by increasing the activity level and duration.
- Sedentary living increases the risk of many diseases and earlier death. Prolonged sitting is unhealthy, regardless of physical activity levels at other times.

See BCCT Moving More webpage and pages 173-174 of Dr. Ted Schettler's *The Ecology of Breast Cancer* for tips for meeting these exercise and movement recommendations.

Moving, whether by formal exercise or by increasing daily activities such as walking, gardening or dancing, is associated with better treatment outcomes.

Treating the Cancer

Moving—whether by formal exercise or by increasing daily activities such as walking, gardening or dancing—is associated with better treatment outcomes. “Most but not all studies show that women who regularly exercise after breast cancer treatment experience reduced all-cause and breast-cancer specific mortality compared to sedentary women over follow-up periods averaging four to eight years. In many studies, higher levels of physical activity or exercise before diagnosis are also associated with improved survival after diagnosis.”²⁸

Managing Side Effects and Promoting Wellness

- Regular exercise is beneficial in reducing fatigue and improving physical function after the diagnosis and initial cancer treatment.²⁹
- Exercise combined with a healthy diet may increase benefit even more.³⁰

Reducing Risk

- “Strong evidence shows risk reductions of 20 to 80 percent for postmenopausal breast cancer with increasing physical activity,” according to Dr. Schettler.³¹ The evidence in premenopausal breast cancer isn’t as strong.
- Research shows an increased risk of various kinds of cancers among inactive individuals compared to very active people. The strongest associations in women are with postmenopausal breast cancer and cervical cancer.³²

For a discussion of the many studies examining links between activity and breast cancer, see chapter 3 of Dr. Ted Schettler's *The Ecology of Breast Cancer: Exercise, physical activity, and breast cancer*.

Managing Stress

As we discuss in our Managing Stress webpage, unusual or chronic unmanaged stress—and the subsequent alteration in stress biochemistry—can affect tumor growth and proliferation.

Treating the Cancer

In *The Ecology of Breast Cancer*, Dr. Ted Schettler suggests that chronic stress could speed the growth and development of an undiagnosed cancer.²⁰

Dr. Schettler points out that the most significant associations of reduced stress levels with better survival are in women who don’t have metastatic disease when they are initially diagnosed and treated. But even in those with more advanced breast cancer, stress reduction has been related to longer survival in some individuals.

Managing Side Effects and Promoting Wellness

Compelling evidence shows that stress reduction significantly improves quality of life after initial treatment of breast cancer and beyond.

Improved quality of life is clearly associated with stress reduction in women with all stages of breast cancer. In general, outcomes are more likely to improve when conventional therapy is combined with more comprehensive interventions that include stress reduction along with optimizing diet, exercise, sleep, and social support.³³

See Managing Stress and chapter 7 in Dr. Ted Schettler's *The Ecology of Breast Cancer: Stress, social support, and breast cancer*.

Therapies for Managing Stress

Several therapies have demonstrated effectiveness in reducing anxiety and stress:

- Sleeping well
- Sharing love and support, shown to substantially help reduce the stress response and improve outcomes in women with breast cancer
- Mind-body approaches
- Manipulative and body-based therapies
- Energy therapies
- Pharmacologic agents such as beta-blockers and psychedelics

See more about each of these therapies on the BCCT website.

Compelling evidence shows that stress reduction significantly improves quality of life after initial treatment of breast cancer and beyond.

Sleeping Well

Many women diagnosed with and being treated for breast cancer report having sleep difficulties. Anxiety and side effects of treatment can lead to sleep disruption. A vicious cycle of cancer symptoms and treatment side effects can build, leading to poor sleep quality. Poor sleep then causes or worsens other symptoms, including depression, fatigue and anxiety.

Treating the Cancer

One of the problems of sleep disruption is that rhythms of the stress hormone cortisol are thrown off target. These abnormal rhythms are linked to less active natural killer cells, which is associated with shorter survival in those with breast cancer.³⁴

Beyond affecting normal cortisol rhythms, chronic poor sleep can disrupt many other processes and conditions with the internal terrain, fostering cancer growth and spread.

Managing Side Effects and Promoting Wellness

Many complementary therapies can help improve sleep and subsequently improve symptoms and quality of life. For instance, mind-body practices such as mindfulness meditation, tai chi and stress reduction practices have been found not only to improve sleep, but also to improve fatigue, depression and reduce inflammatory markers in women with breast cancer.³⁵

Reducing Risk

When circadian rhythms are disrupted by conditions such as shift work, short sleep duration, and exposure to light at night, we see increased risk of several cancers, including breast cancer.³⁶

Consistently poor sleep (and even too much sleep) can lead to a host of physical, mental and emotional problems. Several of these problems create an internal environment that is hospitable to cancer development, growth and spread, such as these:

- Increased inflammation

- Weakened immunity
- Insulin resistance

Sleeping well is an often overlooked but incredibly important way of keeping yourself healthy and reducing your risk of disease.

See BCCT's Sleeping Well webpage for more information.

Creating a Healing Environment

Exposures to toxic chemicals, light at night, radiation and electromagnetic fields are all associated with breast cancer.

Treating the Cancer

Night shift work is associated with tumor growth: "Women who have breast cancer should be advised not to work night shifts because of the strong experimental evidence showing that suppression of melatonin secretion can facilitate tumor growth."³⁷

Radiation to treat cancer can increase risk of a second cancer in vulnerable healthy tissue that falls in the treatment field. Some

integrative oncology clinicians recommend specific complementary approaches to prevent or minimize ionizing radiation damage to normal cells from imaging or radiation therapy.

- Naturopathic physician Neil McKinney has a protocol using "radio-protectant" natural products.³⁸
- Keith Block discusses using radiation couplers to minimize damage to normal cells while enhancing killing effects on cancer cell.³⁹

Reducing Risk

Chemical Exposures

Many toxic chemical exposures throughout the lifespan—starting with fetal development—increase the risk of breast cancer. For instance, exposing a fetus to the hormone DES increases breast cancer risk decades

later, as does pre-pubertal exposure to the pesticide DDT.

According to a report from the Institute of Medicine, the strongest evidence indicates the following chemical exposures increase breast cancer risk:⁴⁰

- Combination hormone therapy products
- Current use of oral contraceptives
- Tobacco smoking

Increasingly persuasive evidence linking the following chemical exposures to breast cancer risk:

- Passive smoking
- Organic solvents besides ethanol
- Ethylene oxide
- Polycyclic aromatic hydrocarbons (PAHs)
- 1,3 butadiene
- Some agricultural chemicals

See chapter 5 of Dr. Ted Schettler's *The Ecology of Breast Cancer*: Environmental chemicals, contaminants, and breast cancer.

BCCT's Creating a Healing Environment webpage contains specifics on ways to improve your environment and reduce harmful exposures. You can also find recommendations on pages 176-180 of *The Ecology of Breast Cancer*.

Night Work and Light at Night

Shift work that disrupts circadian rhythms has been classified as probably carcinogenic by the International Agency for Research on Cancer (IARC).⁴¹ Working night shifts for 20 years or more is associated with a significantly increased risk of breast cancer. The risk with shorter spans of night-shift work is still unclear.

Steps that night shift workers can take to minimize circadian disruption, helping reduce cancer risk.⁴²

- Rapidly rotating shifts (one or two consecutive nights) cause less disruption of circadian rhythms than slowly rotating shifts (three or more consecutive shifts).
- Delay of circadian phase (scheduling sleep to start later) causes less disruption than advance of circadian phase (scheduling sleep to start earlier).

Therefore, forward- rather than backward-rotating shifts are preferable. For example, scheduling work start times progressing later into the day or night—8pm, then midnight, then 6am—is less disruptive than start times that become earlier: 6am, then midnight, then 8pm.

- Permanent night work is an option to avoid circadian disruption and may be feasible if a night-oriented rhythm during days off is maintained. However, this requires avoiding bright light during the day and making certain that sleep is adequate.
- Modified light intensity during work at night can help, such as working in bright white light to increase adoption of a night rhythm or in dim red light to prevent adoption. Dim red light suppresses melatonin less than bright white light, but with a trade-off in alertness that is critical for performing many tasks.

- People working at night should be especially attentive to maintaining adequate levels of vitamin D.
- Considering the potential risks and benefits, most analysts do not recommend earlier or more intensive mammography screening in women night shift workers.

Exposures to toxic chemicals, light at night, radiation and electromagnetic fields are all associated with breast cancer.

On the BCCT website, we describe the dangers of disrupting circadian rhythms (including sleep disruption) and how this can lead to multiple health problems and heighten cancer growth, proliferation and spread.

Ionizing Radiation

Ionizing radiation is clearly established as a risk factor for breast cancer, although very few people, nor even many physicians, are aware of the association.⁴³

Excessive exposure to ionizing radiation from medical sources, including X-rays, CT scans and other medical imaging, is increasing.

Electromagnetic Fields

The International Agency for Research on Cancer (IARC) has classified both extra low frequency (ELF) and radio frequency (RF) electromagnetic fields as possibly carcinogenic in humans,⁴¹ although the connection to

increased risk of breast cancer is not yet clear.

Disturbing case reports of breast cancer in young women carrying cell phones in their bras are noted, but no systematic study of the association has been published. Several mechanisms for how EMFs could influence breast cancer risk have been proposed. Because of this potential risk, many sources propose erring on the side of caution and reducing exposure to ELF-EMFs.

See BCCT's Creating a Healing Environment webpage and chapter 6 of Dr. Ted Schettler's *The Ecology of Breast Cancer*: The electromagnetic spectrum and breast cancer: Sunlight and vitamin D; shift work, artificial light, and sleep; electromagnetic fields for tips for reducing exposures.

Sharing Love and Support

Treating the Cancer

- Sharing love and support has been shown to substantially help reduce the stress response and improve outcomes in women with breast cancer.⁴⁴
- In a 1981 study, social support was associated with psychological benefit.⁴⁵ although this was not replicated in a larger study.

Managing Side Effects and Promoting Wellness

Some of the earliest and most pivotal studies of social support improving quality of life have been in women with breast cancer.⁴⁶

See BCCT's Sharing Love and Support webpage.

Exploring What Matters Now

Treating the Cancer

Finding meaning and setting goals are associated with better outcomes. Results of some studies:

- A study of 578 women with early-stage breast cancer were assessed using the mental adjustment to cancer (MAC) scale. The researchers found a "significantly increased risk of relapse or death at five years in women with high scores on the helplessness and hopelessness category of the MAC scale compared with those with a low score in this category."⁴⁷
- A small study of metastatic cancer of many types found extended survival among those who scored higher on these scales:⁴⁸
 1. Ability to act and change
 2. Willingness to initiate change
 3. Participating in self-help work
 4. Relationships with others
 5. Quality of experience

- Another study of patients with many types of cancer concluded that longer-term survivors displayed a much higher degree of early involvement in their psychological self-help than did most of their nonsurviving peers.⁴⁹

Managing Side Effects and Promoting Wellness

Finding meaning, setting goals, allowing and accepting difficult emotions and connecting with spirituality are associated with

better outcomes:

- Suppressing difficult emotions is associated with greater distress in those with breast cancer.⁵⁰
- A 2015 study found that a "meaning/peace factor of spirituality" was consistently associated with improved quality of life (overall, physical and mental).⁵¹

See BCCT's Exploring What Matters Now webpage.

Sharing love and support has been shown to substantially help reduce the stress response and improve outcomes in women with breast cancer.

Beyond the 7 Healing Practices: Further Integrative Therapies

Complementary therapies and lifestyle practices can be useful to enhance treatment effects, improve quality of life and possibly even extend life for those with breast cancer.

Several therapeutic approaches show potential. However, because breast cancer is actually many individual diseases with different responses to treatments, the advice of a healthcare professional knowledgeable about integrative oncology therapies is crucial.

The therapies presented here are not necessarily singly or in combination the right supplements for you to use. This list is not a recommendation from BCCT. Refer to our summaries of each of these therapies to see uses in breast cancer, where to find dosing guidelines, cautions, and their use in integrative protocols, plans and systems. A licensed health professional experienced in integrative breast cancer care can provide valuable guidance in selecting therapies.

We present natural products and off-label, overlooked and novel cancer approaches (ONCAs) in five categories:

1. Good evidence of efficacy and safety, with easy access
2. Good evidence of efficacy and safety but limited access
3. Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols
4. Limited evidence of efficacy, or significant cautions, or may interfere with treatments (any combination of these three criteria)
5. Evidence of no efficacy or may be dangerous

Other integrative therapies and approaches are described but not categorized. See the full summaries on the BCCT website for more information on each of these therapies.

A licensed health professional experienced in integrative breast cancer care can provide valuable guidance in selecting therapies.

Treating the Cancer

Working against cancer growth or spread, improving survival, or working with other treatments or therapies to improve their anticancer action

Natural Products

Debu Tripathy, MD, writes that “herbal and botanical agents have significant potential as bioactive agents that can affect cellular pathways involved in breast cancer, but may also cause side effects and drug interactions. . . . Caution should be exercised when used with other treatments.”⁵²

Category 1: Good evidence of efficacy and safety, with easy access

These therapies may be widely used in integrative cancer protocols and traditional medical systems.

Therapy	Notes
Flaxseed lignans	<ul style="list-style-type: none"> • Clinical evidence of anticancer effects among newly diagnosed breast cancer patients, including reduced tumor growth • Observational evidence of lower mortality among breast cancer patients • Limited evidence it reduces radiation therapy-induced lung damage
Ginseng	<ul style="list-style-type: none"> • Epidemiological data show improved survival in breast cancer patients with ginseng use

Continued next page

Category 1, continued

Therapy	Notes
Melatonin	<ul style="list-style-type: none"> Protects normal reproductive cells during chemotherapy Increased survival time
Omega-3 fatty acids	<ul style="list-style-type: none"> Evidence from laboratory and clinical studies that eicosapentaenoic acid (EPA) has antitumor effects and is associated with improved clinical and biologic parameters
Turkey tail mushroom	<ul style="list-style-type: none"> Direct anticancer effects resulting in reduced tumor growth and metastasis Enhances the effectiveness of chemotherapy and radiation therapy against cancer cells while protecting normal cells Extends survival in patients with certain types of breast cancer Improves the survival curve of people with operable breast cancer with vascular invasion
Vitamin D (in doses up to 4000 IU per day for adults)	<p>Deficiency is associated with these outcomes:</p> <ul style="list-style-type: none"> Lower odds of receiving a pathologic complete response to breast cancer treatment Breast cancer metastasis Higher vitamin D status is strongly associated with better breast cancer survival Vitamin D supplementation plays an important role in disease-free survival in a number of cancers, particularly breast

Category 2: Good evidence of efficacy and safety but limited access

Some may require a prescription, for example.

(None)

Category 3: Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols

See more about protocols, programs, strategies and traditional medicine systems on the BCCT website.

Therapy	Notes
<i>Agaricales</i> mushrooms	<ul style="list-style-type: none"> Evidence of an increased number of natural killer (NK) cells and other biologic markers in breast cancer patients Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ Block program Used in traditional Chinese medicine
<i>Artemisia annua</i>	<ul style="list-style-type: none"> Strong anticancer potential shown in various types of cancer cells, including inhibiting tumor growth and metastasis and prolonging survival Limited clinical evidence Available by prescription in the US only for patients who have a documented case of severe malaria Used in McKinney protocols Used in traditional Chinese medicine
Astragalus	<ul style="list-style-type: none"> Used as a logical coupler to enhance chemotherapy effectiveness in the Block program
Calcium D-glucarate	<ul style="list-style-type: none"> Limited evidence that it may prevent carcinogenesis, as well as initiation and promotion of cancer cells Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Block program ◇ Chang strategies

Continued next page

Category 3, continued

Therapy	Notes
Curcumin	<ul style="list-style-type: none"> • Anti-inflammatory • Some evidence of anticancer effects • May enhance the effects of some chemotherapy drugs, but may interfere with or interact with several drugs • Some evidence that it acts as a tumor chemosensitizer and radiosensitizer—making tumor cells more sensitive to chemotherapy or radiation—while simultaneously protecting normal organs from these therapies. • Used in Alschuler & Gazella complementary approaches • Used in traditional Chinese medicine and Ayurveda
DIM (diindolylmethane)	<ul style="list-style-type: none"> • Anti-inflammatory, antiproliferative and chemopreventive effect in lab and animal studies • Might enhance the effect of some chemotherapy drugs • Modulates hormones, but the impact on cancer survival is unknown • Used in the Chang strategies
Fermented wheat germ extract	<ul style="list-style-type: none"> • Anticancer and anti-metastatic effects in animal trials and a few clinical trials, but not breast cancer • May have estrogen-receptor activity • In Ralph Moss's Top 10 list of supplements • Used in Alschuler & Gazella complementary approaches
Green tea/ EGCG	<ul style="list-style-type: none"> • Laboratory studies show an anticancer effect of green tea or its main constituent EGCG, although a few clinical trials and population surveys show mixed results. • EGCG enhances the effectiveness of several treatments • EGCG reduces the effect of the chemotherapy drug bortezomib (Velcade), used primarily in multiple myeloma • Used in the Block program • Used in traditional Chinese medicine and Ayurveda

Therapy	Notes
Indole-3-carbinol (I3C)	<ul style="list-style-type: none"> • Lab evidence of anticancer effects • Potentiates or sensitizes in combination with some chemotherapy drugs in lab tests, but no clinical evidence • Reverses cytotoxicity with dexamethasone or cardiotoxicity with doxorubicin in lab tests, but no clinical evidence • Used in the Chang strategies
Inositol hexaphosphate	<ul style="list-style-type: none"> • Limited evidence of anticancer and antiangiogenic effects • Used in the Block program
L-theanine	<ul style="list-style-type: none"> • Animal evidence it enhances the chemotherapeutic effects of some chemotherapy drugs • Used in the Block program
Maitake mushroom	<ul style="list-style-type: none"> • Shows immunomodulatory effects, modifying the immune response or the functioning of the immune system • Plausible anticancer mechanisms have been identified in preclinical studies, but clinical evidence is not yet strong enough to recommend use in breast cancer • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program • Used in traditional Chinese medicine

Continued next page

Category 3, continued

Therapy	Notes
Milk thistle	<ul style="list-style-type: none"> • Evidence of effects in liver cancer • Used as a logical coupler to enhance chemotherapy effectiveness in breast cancer in the Block program
Pomegranate	<ul style="list-style-type: none"> • Limited evidence inhibits breast cancer cell proliferation • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Lemole, Mehta & McKee protocols • Used in traditional Chinese medicine and Ayurveda
Shiitake mushroom	<ul style="list-style-type: none"> • Improved immune function • Good evidence of anticancer effects in cancers other than breast cancer • Plausible anticancer mechanisms have been identified in preclinical studies, but clinical evidence is not yet strong enough to recommend use in breast cancer • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program • Used in traditional Chinese medicine
Vitamin C	<ul style="list-style-type: none"> • Associated with decreased overall mortality but not cancer mortality • Lab and animal evidence of anticancer effects from high-dose IV (intravenous) vitamin C with unspecified cancer types • Concern it may interact with conventional treatments (see antioxidant supplements in Category 4 below) • Used in the Block program to enhance chemotherapy effectiveness

Category 4: Limited evidence of efficacy, or significant cautions, or may interfere with treatments

May involve any combination of these three criteria. May be used in leading integrative oncology plans and protocols.

Therapy	Notes
Amooranin	<ul style="list-style-type: none"> • Limited evidence of anticancer effects including apoptosis (cell death) in tumor cell lines • Used in Ayurveda
Antioxidant supplements (including beta-carotene, lutein, lycopene, selenium, vitamin A, vitamin C, vitamin E and others)	<ul style="list-style-type: none"> • Use during chemotherapy or radiation is controversial, with some proposing they counteract the anticancer effect of conventional therapy. A reasonable recommendation based on current data is to avoid high-dose antioxidants, particularly during chemotherapy and radiation therapy, but to consider them long-term at either lower and more physiological doses, or ideally, through a balanced diet rich in vegetables and whole grains.
Artesunate (<i>Artemisia annua</i> derivative)	<ul style="list-style-type: none"> • Limited and conflicting evidence of anticancer effects in breast cancer • May cause toxicity, especially liver toxicity, when used with chemotherapy or radiation therapy
Ashwagandha	<ul style="list-style-type: none"> • Reduced tumor growth in lab studies • May interfere with chemotherapy • Used in Alschuler & Gazella complementary approaches • Used in Ayurveda

Continued next page

Category 4, continued

Therapy	Notes
Coenzyme Q10	<ul style="list-style-type: none"> • Case reports of regression of breast cancer • May enhance the effectiveness of Tamoxifen • May reduce effectiveness of some chemotherapy drugs and radiation therapy—BCCT’s naturopathic physician sources advise not to take during radiation therapy • Other cautions with long-term use of high doses • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program ◊ McKinney protocols
Glutathione	<ul style="list-style-type: none"> • May increase the effectiveness of cancer chemotherapy drugs such as cisplatin • Glutathione precursor n-acetylcysteine can interfere with certain chemotherapy drugs • May interfere with active cancer therapies which depend on a pro-oxidant and glutathione-depleting effect • Some evidence it prevents blood clots during surgery • Insufficient evidence for reducing toxicity from radiation therapy for breast cancer • Used in traditional Chinese medicine
Grape seed extract	<ul style="list-style-type: none"> • Evidence of anticancer effects in lab studies • Not effective for breast induration following radiotherapy in patients with breast cancer
Iodine	<ul style="list-style-type: none"> • Limited evidence of anticancer effects, including apoptosis, and preventing disease progression

Therapy	Notes
Isothiocyanates	<ul style="list-style-type: none"> • Anticancer activity in lab and animal studies
Magnolia bark	<ul style="list-style-type: none"> • Limited evidence of activity against breast cancer
Medical cannabis and cannabinoids	<ul style="list-style-type: none"> • Limited and conflicting evidence reduces breast tumor growth and promotes tumor cell death in cell studies
Modified citrus pectin	<ul style="list-style-type: none"> • Limited evidence of anticancer effects in breast cancer
Pomi-T	<ul style="list-style-type: none"> • Limited evidence inhibits breast cancer cell proliferation
Quercetin	<ul style="list-style-type: none"> • Evidence of anti-inflammatory and cancer-preventive effects • Limited evidence it blocks apoptosis and worsens estrogen-induced breast tumors • Interferes with the effectiveness of some chemotherapy drugs • Used as a logical coupler to enhance chemotherapy effectiveness in the Block program
Reishi mushroom	<ul style="list-style-type: none"> • Good lab and animal evidence of anticancer effects, but limited clinical evidence • Enhanced the immune responses in patients with unspecified types of advanced-stage cancer • Limited evidence of toxic effects in leukocytes and hepatotoxicity • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program • Used in traditional Chinese medicine

Continued next page

Category 4, continued

Therapy	Notes
Resveratrol	<ul style="list-style-type: none"> In lab and animal studies, inhibits growth of cancer cells May protect against chemotherapy-induced toxicity to the heart
Scutellaria barbatae	<ul style="list-style-type: none"> Anticancer effects in lab and animal studies Protects cells against doxorubicin-induced cardiotoxicity Both pro- and anti-angiogenic effects, depending on dose Used in traditional Chinese medicine
Triphala (mixture of amla, bibhitaki and haritaki)	<ul style="list-style-type: none"> Some evidence of anticancer effects in preclinical studies, including with breast cancer cells Used in Ayurveda
Vitamin E	<ul style="list-style-type: none"> Some evidence of effects against breast cancer Associated with decreased overall mortality but not breast cancer mortality Some concerns about interfering with chemotherapy and radiation therapy (see antioxidant supplements above) Used in Alschuler & Gazella complementary approaches
Vitamin K	<ul style="list-style-type: none"> Limited evidence of reduced cancer mortality

Category 5: Evidence of no efficacy or may be dangerous

Therapy	Notes
714-X	<ul style="list-style-type: none"> Not substantiated in animal studies or based on any available human evidence
Essiac tea	<ul style="list-style-type: none"> Ineffective in randomized or phase II clinical trials
High-dose oral vitamin C	<ul style="list-style-type: none"> Ascorbic acid can reach only a limited plasma concentration through oral administration; high doses must be administered intravenously to have any effect
Hydrazine sulfate	<ul style="list-style-type: none"> Ineffective in randomized or phase II clinical trials
L-glutamine	<ul style="list-style-type: none"> Limited evidence that it reduces radiation morbidity in breast conservation surgery Some evidence suggests a role in promoting tumor cell growth and maintenance
Laetrile	<ul style="list-style-type: none"> Ineffective in randomized or phase II clinical trials
Shark cartilage	<ul style="list-style-type: none"> Studies of various cancers, including breast cancer, have yielded no responses
Soy supplements and isoflavone isolates	<ul style="list-style-type: none"> Preclinical studies show harm from soy isoflavones, including promotion of breast cancer metastasis

Off-label, Overlooked or Novel Cancer Approaches (ONCAs)

Off-label drug use involves a physician prescribing a drug for a disease or condition not approved by the FDA. Prescribing drugs off-label is legal if sufficient evidence indicates its usefulness for the condition or disease prescribed. However, different state medical boards have varying standards regarding off-label use of specific drugs.

Category 1: Good evidence of efficacy and safety, with easy access

These therapies may be widely used in integrative cancer protocols and traditional medical systems.

Therapy	Notes
Chronomodulated therapies	<ul style="list-style-type: none"> • Good evidence of reducing toxicity and improving response to chemotherapy

Category 2: Good evidence of efficacy and safety but limited access

Some may require a prescription, for example.

Therapy	Notes
Amino-bisphosphonates, including clodronate	<ul style="list-style-type: none"> • Good evidence of improved survival in postmenopausal patients with nonmetastatic breast cancer; use is recommended in a Cancer Care Ontario and American Society of Clinical Oncology clinical practice guideline • Data are extremely limited for bisphosphonates other than clodronate • Amino-bisphosphonates require a prescription from a licensed physician • Clodronate is currently not approved for use in the US, but is approved in 67 other countries

Category 2: continued

Therapy	Notes
Copper chelation with tetrathiomolybdate (TM)	<ul style="list-style-type: none"> • Good evidence of improved event-free survival and progression-free survival • Evidence of decreased EPCs (endothelial progenitor cells) and LOX (lysyl oxidase) • Requires a prescription from a licensed physician and access from a compounding pharmacy
Propranolol and other beta blockers	<ul style="list-style-type: none"> • Good evidence of anticancer effects, including reducing cell growth and invasion, enhancing the immune system, reducing angiogenesis and reducing metastasis • May reduce the effects of stress on primary tumor growth • Significantly decreased risk of breast cancer-related recurrence, metastasis, and breast cancer death for early primary triple-negative breast cancer in one study, but no effect on survival in another study of breast cancer patients • May increase the effectiveness of chemotherapy, radiotherapy, and combination therapies • Requires a prescription from a licensed physician

Category 3: Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols

Therapy	Notes
Low-dose naltrexone	<ul style="list-style-type: none"> • Case studies and preliminary clinical evidence of tumor shrinkage and extended survival • Requires a prescription from a licensed physician and access from a compounding pharmacy • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Elsegood LDN guidelines⁷¹ ◊ McKinney breast cancer protocol
Metformin	<ul style="list-style-type: none"> • Preliminary clinical evidence it decreased the numbers of metastatic cases • Evidence of increased pathologic complete response rates • Requires a prescription from a licensed physician • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Chang strategies ◊ McKinney breast cancer protocol

Category 4: Limited evidence of efficacy, or significant cautions, or may interfere with treatments

May involve any combination of these three criteria. May be used in leading integrative oncology plans and protocols.

Therapy	Notes
Clarithromycin	<ul style="list-style-type: none"> • Limited evidence of anticancer effects in breast cancer cell studies • Requires a prescription from a licensed physician

Category 4: continued

Therapy	Notes
Chloroquine	<ul style="list-style-type: none"> • Limited evidence of anticancer effects in breast cancer cell and animal studies • Sensitizes breast cancer cells to chemotherapy in animal models • Evidence it potentiates the anticancer effect of 5-fluorouracil
Gammadelta T-cell immune-therapy with zoledronic acid	<ul style="list-style-type: none"> • Limited evidence of anticancer effects in breast cancer cell studies • Requires a prescription from a licensed physician
Gossypol	<ul style="list-style-type: none"> • Limited lab, animal and clinical evidence of anticancer effects
Non-steroidal anti-inflammatory drugs (NSAIDs) including aspirin and COXII inhibitors	<ul style="list-style-type: none"> • Reduce inflammation, a known driver of tumor growth • Good evidence of benefits regarding the size of the primary tumor, the lymph node status, and the number of involved axillary nodes • Evidence of increased survival with use • The US Food and Drug Administration warns that ibuprofen and naproxen increase the risk of having a heart attack or stroke; medical supervision is strongly advised with all NSAIDs • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Chang strategies
Noscapine	<ul style="list-style-type: none"> • Limited evidence of anticancer effects in preclinical studies
Rapamycin	<ul style="list-style-type: none"> • Limited evidence of anticancer effects in breast cancer cells • Herceptin significantly increased antitumor efficacy • Animal evidence of extended lifespan with consumption late in life

Category 4: continued

Therapy	Notes
Statins	<ul style="list-style-type: none"> • Good evidence of improved recurrence-free, cancer-specific and/or overall survival, especially the lipophilic statins • Good evidence of antitumor effects • May influence the efficacy of many other anticancer or potential anticancer agents • Associated with serious side effects including permanent muscle damage and impaired cognitive function; their potential benefits in breast cancer must be weighed against the risk, and they should be discontinued promptly if serious side effects occur • Some classes of statins may be more useful in breast cancer or come with fewer serious side effects than others. • Requires a prescription from a licensed physician

Diets and Metabolic Therapies

Ketogenic Diet

So far, no clinical trial evidence shows that a ketogenic diet is effective in breast cancer. In fact, in lab studies researchers have found that human breast cancer cells with an enzyme capable of re-using ketone bodies used nearby ketogenic fibroblast cells to fuel their growth.

Intermittent Fasting

Periodic fasting around the time of chemotherapy may sensitize cancer cells to chemotherapy, while protecting normal cells.

Managing Side Effects and Promoting Wellness

Managing or relieving side effects or symptoms, reducing treatment toxicity, supporting quality of life or promoting general well-being

Natural Products

Category 1: Good evidence of efficacy and safety, with easy access

These therapies may be widely used in integrative cancer protocols and traditional medical systems.

Therapy	Notes
Ginger	<ul style="list-style-type: none"> • Evidence for adding to antiemetic drugs to control nausea and vomiting during chemotherapy
Ginseng	<ul style="list-style-type: none"> • Evidence for improving fatigue during treatment • Epidemiological data show improved quality of life in breast cancer patients with ginseng use

Therapy	Notes
Omega-3 fatty acids	<ul style="list-style-type: none"> • Evidence from laboratory and clinical studies that eicosapentaenoic acid (EPA) has anticachectic (muscle wasting) effects and is associated with improved quality of life
Probiotics	<ul style="list-style-type: none"> • Evidence that probiotics are useful in reducing enteritis related to radiation therapy and 5-fluorouracil (5-FU), as well as reducing diarrhea induced by 5-FU and irinotecan
Vitamin D (in doses up to 4000 IU per day for adults)	<ul style="list-style-type: none"> • Improved bone health when used with calcium in breast cancer patients • Increased doses are needed with concomitant steroid uptake

Category 2: Good evidence of efficacy and safety but limited access

Therapy	Notes
Medical cannabis and cannabinoids	<ul style="list-style-type: none"> • Conclusive or substantial evidence that cannabis or cannabinoids are effective for treating pain in adults and chemotherapy-induced nausea and vomiting • Moderate evidence for improving secondary sleep disturbances • Limited, insufficient or absent evidence supporting improvement in appetite or anxiety • Access varies by country and US state, with moderately easy access in some areas and no or very limited legal access in others

Category 3: Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols

Therapy	Notes
<i>Agaricales</i> mushrooms	<ul style="list-style-type: none"> • Limited evidence of reductions in the amount of vomiting caused by chemotherapy, increased appetite and reduced anorexia • Limited evidence of improved quality of life • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program • Used in traditional Chinese medicine
Ashwagandha	<ul style="list-style-type: none"> • Limited evidence it alleviates chemotherapy-induced fatigue and improved quality of life • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program ◊ McKinney protocols • Used in Ayurveda

Category 3: continued

Therapy	Notes
Calcium D-glucarate	<ul style="list-style-type: none"> • Used in the Block program
Coenzyme Q10	<ul style="list-style-type: none"> • Reduced fatigue in combination with L-carnitine • Insufficient evidence for relieving depression/mood or fatigue or improving quality of life • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program ◊ McKinney protocols
Curcumin	<ul style="list-style-type: none"> • Some evidence of improved symptoms • Used in the Lemole, Mehta & McKee protocols • Used in traditional Chinese medicine and Ayurveda
DIM (diindolylmethane)	<ul style="list-style-type: none"> • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Chang strategies ◊ Lemole, Mehta & McKee protocol
Glutathione	<ul style="list-style-type: none"> • Some evidence it reduces side effects of chemotherapy • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ McKinney protocols
Grape seed extract and/or pycnogenol	<ul style="list-style-type: none"> • Used in the Lemole, Mehta & McKee protocol
Green tea	<ul style="list-style-type: none"> • Used in these plans and protocols: <ul style="list-style-type: none"> • Block program • Lemole, Mehta & McKee protocol

Continued next page

Category 3: continued

Therapy	Notes
Inositol hexaphosphate	<ul style="list-style-type: none"> • May alleviate chemotherapy side effects and improve quality of life in breast cancer patients • Used in the Block program
Isothiocyanates	<ul style="list-style-type: none"> • Chemopreventive activity in breast cancer • Used in the Lemole, Mehta & McKee protocol
L-glutamine	<ul style="list-style-type: none"> • Evidence it reduces the duration but not the severity of diarrhea • Evidence of no benefit for improving nausea and vomiting during chemotherapy • Used in the Alschuler & Gazella complementary approaches, limiting use and duration to address specific symptoms due to tumor-promoting potential (see Category 5 above)
Milk thistle	<ul style="list-style-type: none"> • Used in the Lemole, Mehta & McKee protocol
Mistletoe extract	<ul style="list-style-type: none"> • Evidence for improving quality of life • Access in the US is difficult but not impossible • Used in the Alschuler & Gazella complementary approaches • Used in traditional Chinese medicine
Modified citrus pectin	<ul style="list-style-type: none"> • Used in the Alschuler & Gazella complementary approaches

Therapy	Notes
Omega-3 fatty acids	<ul style="list-style-type: none"> • Evidence of benefits of omega-3s in weight stabilization, gain in lean body mass, and improvement in quality of life markers in patients losing weight as a result of advanced pancreatic and head and neck cancers (not breast cancer) • Insufficient evidence to recommend use for peripheral neuropathy • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Lemole, Mehta & McKee protocol • Used in traditional Chinese medicine and Ayurveda
Quercetin	<ul style="list-style-type: none"> • Used in the Lemole, Mehta & McKee protocol
Reishi mushroom	<ul style="list-style-type: none"> • Animal evidence it reduces chemotherapy-induced nausea and vomiting • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Alschuler & Gazella complementary approaches ◊ Block program • Used in traditional Chinese medicine
Resveratrol	<ul style="list-style-type: none"> • Used in the Lemole, Mehta & McKee protocol

Continued next page

Category 3: continued

Therapy	Notes
Shiitake mushroom	<ul style="list-style-type: none"> Reduced the incidence of chemotherapy-associated adverse effects in gastrointestinal cancer patients Improved quality of life in combination with immunotherapy Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ Block program Used in traditional Chinese medicine
Vitamin and mineral combination (vitamins A, E, C, B, K and D plus calcium, magnesium and trace minerals)	<ul style="list-style-type: none"> Used to prevent treatment-related nutrient deficiency in the Block program
Vitamin C	<ul style="list-style-type: none"> Limited evidence of benefit for fatigue, nausea/vomiting, pain and appetite loss Used in the Block program
Vitamin E	<ul style="list-style-type: none"> Limited evidence it reduces oral mucositis, hand-foot syndrome and peripheral neuropathy Used in the following plans and protocols: <ul style="list-style-type: none"> ◇ Chang strategies for hot flashes ◇ Lemole, Mehta & McKee protocol

Category 4: Limited evidence of efficacy, or significant cautions, or may interfere with treatments

May involve any combination of these three criteria. May be used in leading integrative oncology plans and protocols.

Therapy	Notes
Black cohosh	<ul style="list-style-type: none"> Limited evidence for relieving hot flashes, depression and joint pain Liver problems are noted, perhaps due to quality and mixing of different species
Boswellia	<ul style="list-style-type: none"> Limited evidence reduces radiotherapy skin damage in mammary carcinoma
Flaxseed lignans	<ul style="list-style-type: none"> Observational data suggest associations between flax and better mental health Ineffective in reducing hot flashes in postmenopausal women, either with or without breast cancer
Melatonin	<ul style="list-style-type: none"> Some evidence of improved symptoms Caution on use shortly before surgery as it can magnify the effects of anesthesia Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Block program ◇ Lemole, Mehta & McKee protocol
Scutellaria barbatae	<ul style="list-style-type: none"> Anticancer effects in lab and animal studies Both pro- and anti-angiogenic effects, depending on dose Used in the Lemole, Mehta & McKee protocol Used in traditional Chinese medicine

Continued next page

Category 4: continued

Therapy	Notes
Vitamin K	<ul style="list-style-type: none"> • No meaningful evidence it reduces nausea • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Lemole, Mehta & McKee protocol

Category 5: Evidence of no efficacy or may be dangerous

Therapy	Notes
Acetyl-L-carnatine	<ul style="list-style-type: none"> • Evidence of no improvement with fatigue • Evidence of harm with peripheral neuropathy
Aloe vera	<ul style="list-style-type: none"> • Evidence of no improvement with acute radiation skin reaction
L-glutamine	<ul style="list-style-type: none"> • Evidence of no effect improving nausea and vomiting during chemotherapy
Guarana	<ul style="list-style-type: none"> • Evidence of no effect improving fatigue during treatment
Hyaluronic acid cream	<ul style="list-style-type: none"> • Evidence of no effect improving acute radiation skin reaction
Soy	<ul style="list-style-type: none"> • Evidence of no effect for hot flashes in patients with breast cancer • Used in traditional Chinese medicine

Off-label, Overlooked or Novel Cancer Approaches (ONCAs)

Category 1: Good evidence of efficacy and safety, with easy access

(None)

Category 2: Good evidence of efficacy and safety but limited access

Some may require a prescription, for example.

Therapy	Notes
Amino-bisphosphonates, including clodronate	<ul style="list-style-type: none"> • Good evidence of benefit with cancer treatment-induced bone loss (CTIBL) • Recommended by an interdisciplinary expert panel of clinical oncologists and of specialists in metabolic bone diseases for patients with metastatic bone disease from breast cancer • Amino-bisphosphonates require a prescription from a licensed physician • Clodronate is currently not approved for use in the US, but is approved in 67 other countries

Category 3: Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols

Therapy	Notes
Cryotherapy (cold treatment)	<ul style="list-style-type: none"> • Preliminary clinical evidence it reduces chemotherapy-induced peripheral neuropathy • Used in the Block program
Low-dose naltrexone	<ul style="list-style-type: none"> • Case studies and preliminary clinical evidence of improving mood and promoting positive emotional states • Limited evidence improves myalgia due to drugs including aromatase inhibitors • Requires a prescription from a licensed physician and access from a compounding pharmacy • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Elsegood LDN guidelines⁷¹ ◊ McKinney breast cancer protocol
Metformin	<ul style="list-style-type: none"> • Animal evidence of decreased peripheral neuropathy • Animal evidence of decreased cognitive impairment from cisplatin treatment • Requires a prescription from a licensed physician • Used in these plans and protocols: <ul style="list-style-type: none"> ◊ Block program ◊ Chang strategies (case study) ◊ McKinney breast cancer protocol
Propranolol and other beta blockers	<ul style="list-style-type: none"> • Limited evidence of improvements in weight gain or emotional distress • Requires a prescription from a licensed physician • Used in the Lemole, Mehta & McKee stress management protocol

Diets and Metabolic Therapies

A diet designed to address fatigue in breast cancer survivors showed positive results in a small pilot study.⁵³

Periodic fasting shows benefits on side effects during chemotherapy treatment:

- Research suggests that periodic fasting around the time of chemotherapy may reduce chemotherapy side effects (vomiting, diarrhea, fatigue and weakness).
- Integrative oncologist Dwight McKee, MD, has advised some of his chemotherapy patients to follow intermittent fasting during chemotherapy.

Mind-Body Approaches

Mind-body approaches including music therapy, meditation and yoga have been shown to improve side effects and symptoms.

Energy Therapies

Energy therapies with evidence for improving side effects and symptoms include these:

- Healing Touch
- Qigong
- Reiki
- Therapeutic Touch

Manipulative and Body-based Methods

Therapies with evidence for improving side effects and symptoms include these:

- Acupuncture and acupressure
- Massage

Reducing Risk

Reducing the risk of developing cancer or the risk of recurrence

Risk Factors

Generally accepted individual risk factors for breast cancer include these, with varying levels of association:

- Family history
- Pregnancy history (late age first pregnancy or having no children)
- Menstrual history (early age of puberty or later age of menopause)
- Genetic factors
- Dense breast tissue
- Chest radiation
- Recent oral contraceptive use
- Combination hormone therapy
- Cigarette smoking
- Alcohol consumption

Although these are important, they do not fully explain why many people develop breast cancer.

Lifestyle and environment influence the risks of developing breast cancer and of recurrence after treatment.

From Dr. Ted Schettler's *The Ecology of Breast Cancer*:²⁰

Breast cancer risk factors help shape conditions that foster vulnerability to the disease and less favorable outcomes. Risk factors for which the strength of evidence varies from strong to probable to plausible:

- Certain kinds of diets
- Inadequate physical activity
- Exposures to certain environmental chemicals or contaminants
- Non-ionizing radiation
- Inadequate vitamin D status
- Shift work
- Light at night
- Stress
- Societal determinants of these factors

The role of each of the 7 Healing Practices in reducing the risks of breast cancer development and recurrence is described above. Two further factors—alcohol use and breast feeding—are discussed here.

Alcohol Intake

Alcohol consumption is a recognized risk factor—among those with the strongest evidence—for developing breast cancer.⁵⁴

After diagnosis, some studies show that recurrence is higher in those having more than three or four drinks per week, particularly in postmenopausal women.⁵⁵

Lifestyle and environment influence the risks of developing breast cancer and of recurrence after treatment.

The American Institute for Cancer Research states: “For cancer prevention, AICR recommends not to drink alcohol. However, our recommendations recognize that modest amounts of alcohol may have a protective effect on heart disease and type 2 diabetes. If you do drink alcohol, limit your consumption to no more than two drinks a day for men and one drink a day for women. Alcohol appears particularly harmful when combined with smoking.”⁵⁶

An extensive 2018 review and systematic analysis goes even further, recommending no consumption of alcohol: “The level of consumption that minimises health loss is zero.”⁵⁷

See BCCT’s Healthy Living webpage.

Breastfeeding

Breastfeeding brings many benefits to the mother as well as the infant, including reducing the mother’s risk of breast cancer.⁵⁸

Many organizations, including the University of Texas MD Anderson Cancer Center, recommend breastfeeding your infant for at least six months, and longer is better.⁵⁹

Therapies to Reduce Risk

Natural Products

Category 1: Good evidence of efficacy and safety, with easy access

These therapies may be widely used in integrative cancer protocols and traditional medical systems.

Therapy	Notes
Green tea	<ul style="list-style-type: none"> Consuming greater than 5 cups per day is associated with lower breast cancer onset and cancer recurrence in those with early stages of breast cancer
Lycopene	<ul style="list-style-type: none"> Large, population-based studies associate lycopene with lower risk of estrogen-receptor-positive (ER+) and progesterone-receptor-positive (PR+) breast cancers

Category 2: Good evidence of efficacy and safety but limited access

(None)

Category 3: Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols

Therapy	Notes
Black cohosh	<ul style="list-style-type: none"> Used in Alschuler & Gazella complementary approaches¹⁶³
Boswellia	<ul style="list-style-type: none"> May help to reduce mammary density, a risk factor for breast cancer, but no direct evidence of reduced occurrence Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Block program ◇ McKinney breast cancer protocol Used in traditional Chinese medicine and Ayurveda

Category 3: continued

Therapy	Notes
Flaxseed lignans	<ul style="list-style-type: none"> Observational clinical data suggest associations between flax and decreased risk of primary breast cancer Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ McKinney breast cancer protocol
Glutathione	<ul style="list-style-type: none"> Reduced levels are associated with increased cancer risk Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ Lemole, Mehta & McKee protocols ◇ McKinney breast cancer protocol
Indole-3-carbinol (I3C)	<ul style="list-style-type: none"> Limited evidence it may promote tumor growth in animals but not in humans Used in the Alschuler & Gazella complementary approaches
Iodine	<ul style="list-style-type: none"> Iodine deficiency is a risk factor in breast cancers Used in the Alschuler & Gazella complementary approaches
Melatonin	<ul style="list-style-type: none"> Used in the Alschuler & Gazella complementary approaches

Continued next page

Category 3: continued

Therapy	Notes
Omega-3 fatty acids	<ul style="list-style-type: none"> • Some evidence that omega-3s may be associated with reduced risks of breast and colon cancers • Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ Block program ◇ Chang strategies ◇ Lemole, Mehta & McKee protocols ◇ McKinney breast cancer protocol • Used in traditional Chinese medicine and Ayurveda
Probiotics	<ul style="list-style-type: none"> • Limited evidence of risk reduction • Used in the Alschuler & Gazella complementary approaches • Used in traditional Chinese medicine and Ayurveda
Reishi mushroom	<ul style="list-style-type: none"> • Good lab and animal evidence of chemoprotective effects of cancer invasion and metastasis, but limited clinical evidence • Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ Block program • Used in traditional Chinese medicine
Selenium	<ul style="list-style-type: none"> • Evidence of cancer-preventive benefits on several cancers, but not breast cancer • Used in the Block program

Therapy	Notes
Soy (foods, not supplements)	<ul style="list-style-type: none"> • Women consuming moderate amounts of soy throughout their lives have lower breast cancer risk than women who do not consume soy • Used in traditional Chinese medicine
Vitamin D (in doses up to 4000 IU per day for adults)	<ul style="list-style-type: none"> • Deficiency is associated with higher risk of breast cancer, although no evidence shows that supplements reverse this • Deficiency is associated with earlier menarche (onset of menstruation), which is a known risk factor for breast cancer • Vitamin D supplementation plays an important role in disease-free survival in a number of cancers, particularly breast • Associated with decreased recurrence risk in ER+ breast cancer, although not consistently • Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches ◇ Block program
Vitamin E	<ul style="list-style-type: none"> • Used in the Block program

Category 4: Limited evidence of efficacy, or significant cautions, or may interfere with treatments

May involve any combination of these three criteria.
May be used in leading integrative oncology plans and protocols.

Therapy	Notes
Agaricales mushrooms	<ul style="list-style-type: none"> Limited evidence of reduced risk of breast cancer with increased daily intake and frequency of consumption, especially in postmenopausal women Used in traditional Chinese medicine
Alpha-lipoic acid	<ul style="list-style-type: none"> May lower blood sugar Used in these plans and protocols: <ul style="list-style-type: none"> ◇ Alschuler & Gazella complementary approaches for inflammation and insulin resistance ◇ Block program for terrain support, to counter oxidation and inflammation, and other general cancer risk reduction ◇ McKinney breast cancer protocol
Calcium D-glucarate	<ul style="list-style-type: none"> Limited evidence that it may prevent carcinogenesis, as well as initiation and promotion of cancer cells
DIM	<ul style="list-style-type: none"> Limited evidence reduces risks of breast cancer
Vitamin C	<ul style="list-style-type: none"> Evidence it reduces oxidative stress, but limited evidence of reduced breast cancer risk Some evidence that breast cancer patients using vitamins C and E as well as multivitamins had fewer recurrences Some plants used in traditional Chinese medicine are high in vitamin C
Vitamin K	<ul style="list-style-type: none"> Limited evidence of reduced cancer occurrence

Off-label, Overlooked and Novel Cancer Approaches (ONCAs)

Category 1: Good evidence of efficacy and safety, with easy access

(None)

Category 2: Good evidence of efficacy and safety but limited access

Some may require a prescription, for example.

Therapy	Notes
Amino-bisphosphonates, including clodronate	<ul style="list-style-type: none"> Good evidence of reduced bone recurrence in postmenopausal patients with nonmetastatic breast cancer; use is recommended in a Cancer Care Ontario and American Society of Clinical Oncology clinical practice guideline Data are extremely limited for bisphosphonates other than clodronate Amino-bisphosphonates require a prescription from a licensed physician Clodronate is currently not approved for use in the US, but is approved in 67 other countries
Metformin	<ul style="list-style-type: none"> Good evidence of reduced risk of invasive breast cancer in postmenopausal women Good evidence it reduces overall cancer incidence Requires a prescription from a licensed physician
Propranolol and other beta blockers	<ul style="list-style-type: none"> Good evidence of reduced risks of some cancers and also metastasis in breast cancer Requires a prescription from a licensed physician

Category 3: Limited evidence of efficacy but good safety, used in leading integrative oncology plans and protocols

(None)

Category 4: Limited evidence of efficacy, or significant cautions, or may interfere with treatments

May involve any combination of these three criteria.

May be used in leading integrative oncology plans and protocols.

Therapy	Notes
Non-steroidal anti-inflammatory drugs (NSAIDs) including aspirin and COXII inhibitors	<ul style="list-style-type: none"> • Good evidence of reduced breast cancer risk • Caution is advised for those with hypertension or risk factors for gastrointestinal bleeding
Statins	<ul style="list-style-type: none"> • Good but inconclusive evidence of reduced breast cancer risk • Associated with serious side effects including permanent muscle damage and impaired cognitive function; their potential benefits in breast cancer must be weighed against the risk, and they should be discontinued promptly if serious side effects occur • Requires a prescription from a licensed physician

Diets and Metabolic Therapies

These diet and metabolic therapies are associated with lower risk of breast cancer:

- Mediterranean Diet
- Intermittent Fasting: Women with early-stage breast cancer who fasted less than 13 hours each night had an increased risk for breast cancer recurrence compared with fasting 13 or more hours per night.

Advice from Medical Advocate and Breast Cancer Survivor

Gwendolyn Stritter, MD

As a breast cancer medical advocate, I find there are certain areas that patients are really grateful to learn about. Here are a few:

Regional Anesthesia for Mastectomy

Performing certain nerve blocks (paravertebral or pectoral) before surgical incision allows for “light” general anesthesia. This in turn results in quickly “waking up” from anesthesia without nausea or prolonged grogginess. It also lowers the chance of post-mastectomy chronic pain that, unfortunately, is not uncommon.⁶⁰ Giving opioids (like morphine) for pain control during and after surgery can be minimized or even avoided entirely. Enough evidence shows that regional anesthesia lowers the chance of subsequent relapse and metastasis.⁶¹ A formal clinical trial is looking at this very issue: Regional Anesthesia and Breast Cancer Recurrence.

Not all anesthesiologists have the training or experience to do these blocks well. An appointment with the anesthesia team well in advance of surgery will increase the odds of getting these blocks before mastectomy. I had bilateral paravertebral blocks for my double mastectomy and required only NSAIDs for post-op pain control. My experience was documented on video: Gwen Stritter's Painless Double Mastectomy.

Hormone Therapy before Surgery

Anti-estrogen therapy, typically started after surgery, prevents breast cancer relapse and death in ER+ cancers. However, some patients do not relapse even if they do not take anti-estrogen medication. Other patients will relapse despite taking them. This means a significant number of patients taking anti-estrogens suffer from the adverse effects of treatment without the benefit of improved outcomes. Taking anti-estrogens before surgery reveals those who would not respond to such treatment, thus saving 5 to 10 years of ineffective therapy. Another benefit of neoadjuvant hormone therapy: good outcomes despite less aggressive surgery, such as lumpectomy instead of mastectomy.

It is not surprising that there is a groundswell of support in some centers for giving anti-estrogens before surgery in women with ER+ breast cancer.⁶² This allows the patient and the oncology team to know whether a particular medication is effective against the breast cancer and, if it does not induce a partial or complete remission, allows switching to a more active treatment regimen before surgery.

I had tamoxifen before surgery for my ER+ breast cancer, and seeing most of my cancer disappear on MRI over the ensuing 6 months was very gratifying. Knowing the tamoxifen worked so well kept me highly motivated to continue it for the next 5 years.

De-escalation of DCIS Treatment

60 percent of the patients with DCIS would not progress to invasive breast cancer even without any treatment whatsoever. But not knowing which patient will progress, combined with the potential for metastasis in those who do progress, has understandably led oncologists to overtreat everyone in the hopes of improving the survival of the 40 percent who are at risk.

60 percent of the patients with DCIS would not progress to invasive breast cancer even without any treatment whatsoever.

Fortunately, this is beginning to change as researchers are steadily showing ways to reduce DCIS treatment while maintaining excellent outcomes. Radiation

therapy is a good example. Radiation therapy decreases relapse rates for DCIS, but it does not improve survival. For some patients, the reduction in relapse outweighs other considerations and they opt for radiation therapy. Now with the advent of genomic testing, oncologists are now actively researching tests such as Oncotype DX DCIS⁶³ and SweDCIS⁶⁴ that help limit radiation therapy only to those

would have a high risk of relapse without it.

Preliminary data also show that even surgery can be avoided in low-risk DCIS. This research is compelling enough that an ongoing 50-state clinical trial of active surveillance vs. surgery is underway: Comparison of Operative to Monitoring and Endocrine Therapy (COMET) Trial For Low Risk DCIS (COMET).

It is very exciting to see the breast oncology field moving in the direction where surgery and radiation therapy are used only on the few patients who need them.⁶⁵

Taking Care of Your Heart: Cardiac Toxicity and Breast Cancer Treatment

People with breast cancer who are undergoing chemotherapy such as anthracyclines (including Adriamycin/doxorubicin), targeted agents such as Herceptin/trastuzumab, and radiation therapy to the chest are at risk for heart damage. Risk is even higher for those receiving anthracyclines plus Herceptin or anthracyclines plus chest radiation.

“Cardiac toxicity is damage to the heart by harmful chemicals [or radiation]. As part of your treatment, you may be given toxins (drugs) [and radiation therapy] to kill cancer cells. A side effect is that the normal cells in and around your heart can also be killed. Besides cell death, other types of cardiac toxicity from cancer treatment.”⁶⁶

- Cardiomyopathy

- Myocarditis
- Pericarditis
- Acute coronary syndromes
- Congestive heart failure

With people living longer after their cancer diagnosis and treatment than in the past, this problem is becoming more prevalent, so much so that a new cancer subspecialty—cardio-oncologist—has developed. More and more cancer treatment centers have cardio-oncology programs.

From a conventional treatment standpoint, the way to prevent heart problems from cancer treatment is to get a baseline test of heart function, monitor the person at risk for problems, and adjust drug dosage and/or

frequency or even change to a less cardiotoxic drug. Radiation oncology is becoming more and more adept at targeting the cancerous tissue and shielding the heart and lungs. Early treatment of heart problems is more likely to prevent serious damage.

Some complementary therapies may be helpful.

- “Heart healthy” lifestyle choices including the 7 Healing Practices of eating well, moving more, managing stress and sharing love and support

Lifestyle practices are the first steps to get your cardiovascular system in the best shape possible, before treatment if possible but also as part of your survivorship plan for health. Be sure to consult with your doctor before starting an exercise program, particularly if you already have heart or other problems such as neuropathy that may require adjustments to a fitness plan. In this case, a cardiac or cancer rehab program may guide you in choosing safe exercise and movement therapies.

- Coenzyme Q10
Some integrative oncology practitioners recommend their patients at risk for cardiotoxicity take (CoQ10) supplements. Dr. Keith Block advises patients on heart-damaging medications to take

200 mg or even considerably more of CoQ10 per day.⁶⁷

Many heart patients are also on statins. Block says, “Because statins deplete coenzyme Q10 from your muscle cells, particularly your heart, I advise patients on statins to take at least 30 mg of coQ10 per day.”⁶⁸ CAM-Cancer states: “Weak evidence is available that CoQ10 protects the heart from chemotherapy-induced toxicity.”⁶⁹

Before taking coQ10, consult with your doctor. Because CoQ10 is an antioxidant, it may theoretically interfere with some chemotherapy drugs (such as anthracyclines and cyclophosphamide) or radiation therapy. However, “Recent in-vitro studies, however, have shown that CoQ10 does not affect the antineoplastic properties of doxorubicin.”⁶⁹

- Hawthorn
Used to support the heart muscle against congestive heart failure, hawthorn extract is part of some breast cancer protocols.⁶⁷
- Carnitine, also called L-carnitine⁶⁷

Breast Reconstruction: Now More Options

Two basic types of breast reconstruction are available after mastectomy:

1. Breast implants
2. Flap reconstruction using tissue from your own body to reconstruct the breast

Further options are available within those two categories. To learn more about the standard post-mastectomy breast reconstruction options, see an online decision aid called BRECONDA: Breast Reconstruction Decision Aid.

Current discussion on implants involves subpectoral expander-based breast reconstruction. For many years, the standard has been to place the implants under the pectoralis major muscle (PMM), partially detaching that muscle. Although this implant position is thought to give a better cosmetic result, many women report problems

due to partial injury of the PMM with subsequent muscular deficit, breast animation and postoperative pain.

Evidence supports another way to position breast implants: placing the implant above the PMM and covering it with a dermal matrix derived from pig tissue. The procedure is called prepectoral implant placement and complete coverage with porcine acellular dermal matrix (ADM). Evidence thus far indicates this procedure is safe, provides good cosmetic results and has a low complication rate even with radiotherapy.⁷⁰

An article in the *New York Times* provides a discussion of this procedure as well as describing Dr. Deborah Cohan's experience with replacing her sub-pectoral implant with a pre-pectoral implant: New approach to breast reconstruction may reduce pain and weakness for some.

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