BREAST CANCER
THRIVING THROUGH TREATMENT TO RECOVERY

Improve Quality of Life With

✓ Proven practices to reduce treatment side effects
✓ Exercises to build strength
✓ Quick and delicious recipes that provide essential nutrients
✓ Tips and solutions to bolster psychological health

Lisa A. Price, ND
Breast Cancer
Thriving Through Treatment to Recovery

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This guide is dedicated to all my cancer patients, their families, oncologists, and healthcare team members.

Thanks to the photographers: Food photos, Nicole Barnes Goenner; active lifestyle photos, Nia A. Price-Nascimento.
PREFACE

Truth be told, there is no one magic bullet when it comes to perfect health, treatment, or cures. This is particularly pertinent regarding cancer treatment. While conventional therapies are vital, they result in side effects that can greatly affect quality of life and self-identity, and impact recovery and remission. Patients are often told that diet, exercise, and other activities will not make a difference in the development or intensity of these symptoms. Nothing could be farther from the truth, and peer-reviewed research supports this. It is therefore of utmost importance that all patients use safe and comprehensive planning during cancer treatment through recovery for best outcomes.

This is where this companion guide comes into play. This book is a culmination of my observations of best therapies as a clinician and as a research scientist in complementary and integrative cancer care. I am motivated to share them with you because a holistic approach makes such a positive difference in the lives of patients undergoing cancer treatment through recovery. Besides my own observations, many scientific studies support the effects of specific culinary nutrition, exercise, and mind–body therapies for patients undergoing treatment for breast cancer.

This book will help you understand the various treatments for breast cancer and how they work. I also review the effects of treatment on your immune system and your nutritional status. A diagnosis of cancer often comes with a predictable amount of trauma that can lead to some emotional distress, and I address issues that may result and actions to help mitigate.

Overall, the book moves from explanations of what is happening to solutions. These are divided into three sections: cookbook (nutrition), exercise, and mind–body therapy, each tailored specifically to benefits for breast cancer patients.

It is my hope that patients engage in a holistic plan that they can incorporate for their lifetime. I highly recommend that you find a qualified and licensed provider to help guide you. If you are having trouble finding a healthcare provider in complementary cancer care with expertise in culinary nutrition, please feel free to contact me at www.drlisapricend.com for an online consult.

May you all be on your path to healing and wellness with hope and strength.
ACKNOWLEDGMENTS

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INTRODUCTION

The greatest thing in the world is to know how to belong to oneself.

—Michel de Montaigne

I have been fortunate to work as a healthcare provider in conventional and private settings around the Puget Sound region, providing a truly integrative approach to treating breast cancer that includes oncologists, radiation oncologists, and other cancer team members. Patients choosing a complementary approach, in my observations, experience less side effects, have a better quality of life during treatment, and feel a greater sense of self-control, and thus, self-advocacy. Data shows that they have better outcomes, and increased remission rates. Holistic approaches are vital and provide a greater sense of hope and a broader view of patients as whole persons and individuals, not just statistics or numbers.

My work with patients involves guiding them from the start of treatment through recovery and into remission. I dispel myths patients find online, evaluate the safety of supplements relative to conventional therapies they have been prescribed, and direct them to safe and effective ones appropriate for each individual. Food intake is assessed and specifically modified to reduce or prevent side effects associated with chemotherapy, radiation, or hormone therapy, and patients are encouraged to incorporate consistent exercise and mind–body therapies. Scientific evidence supports the use of holistic approaches indicating increases in remission rates and certainly, positively affecting quality of life.

I have been inspired and filled with hope the past decade witnessing the power of specific diets and culinary nutrition, use of exercise and mind–body therapies during treatment, especially during breast cancer treatment and beyond. One of my favorite and most inspiring stories follows.

“Liz” came to me when she was initially diagnosed with Stage I triple negative breast cancer. She went through the standard treatment of surgery, chemotherapy (Adriamycin, Cytoxan, and Taxol), and then a round of radiation. She remained NED (No Evidence of Disease) for 9 months before the cancer showed up again. She was again treated but this time with surgery and Taxotere. The cancer continued to grow. At this point, her oncologist told her to get her things in order, there was nothing else he
could do. “Liz” had become quite the self-advocate over time and therefore empowered and we refused to accept that as the final answer. She searched and pushed to become enrolled in a new clinical trial. The trial disallowed her from using supplements and therefore she turned to culinary nutrition, a specific and individualized diet which I facilitated. She is currently NED for the past 18 months (one of the only ones in the trial) and attributes her status to the trial drug and a strict adherence to the diet. She explains her energy level is good, she is sleeping better, and continues to be empowered. Her advocacy now extends to other breast cancer patients, educating patients on the power of food, exercise, and mind–body therapies.

“Liz’s” story illustrates several pearls in the use of complementary therapies and underlines the importance in using a holistic approach during treatment. Patients that develop self-directed safe plans, be it through diet or physical activity, are able to mentally and psychologically improve their quality of lives while undergoing cancer treatment. The second pearl is that these tools do have a physical and physiological effect on the immune system and quality of life.

Complementary therapies include but are not limited to naturopathic medicine, culinary nutrition, acupuncture, and massage therapy. When a holistic approach is managed by an expert team of licensed practitioners in conjunction with conventional therapies benefits can be achieved for patients.

In the past several years, the rate of remission and stabilization has increased so significantly that a newly recognized phase of treatment has been added called survivorship. With new forms of chemotherapy and immune therapies introduced in the past 10 to 15 years, more people are surviving or living with breast cancer. Patients living with cancer and patients wanting to avoid recurrence need continuing guidance.

The survivor trend was noted by a large and important body of professionals in the cancer world called the Commission on Cancer, a credentialing body composed of surgeons. In 2005, understanding the importance of holistic plans to maintain health, based on peer-reviewed scientific studies, they suggested that all accredited cancer institutes create what is known as survivorship programs. These programs provide cancer patients with

- Concise assessment plans with the oncology care team
- Physical need assessments and services (exercise and physical therapy)
- Nutritional analysis and plans
- Emotional well-being services (mind–body therapies)
Many cancer centers have these services, and you should ask your oncologist or healthcare provider about the survivorship programs they are associated with.

Cancer treatment and diagnosis are physically and emotionally traumatic, causing challenges to mental and physical health, and to nutritional status. Conventional treatment, which includes surgery, radiation, chemotherapy, and hormone therapy, is effective in treating cancer. However, treatment can, and often results in short- and long-term side effects that can affect quality of life and increase the potential risk of long-term ailments including second cancers. Most of the effects are caused by the treatment’s direct tissue necrosis or damage, depression of the immune system, and/or nutrient deficiencies.

It is necessary to address these changes for optimal health to be achieved. For example, cancer treatment depletes certain important nutrients. Studies by the National Cancer Institutes have found that nutrition and in particular specific foods can affect outcome, and even help or hurt short- and long-term side effects. Patients receiving nutritional counseling before, during, and after cancer treatment have better outcomes, quality of life, and experience significantly fewer side effects. Furthermore, certain nutrients control the onset of specific side effects from treatment. There are several good studies that validate the importance of nutrition in prevention and remission. One such study, a 2013 survey, demonstrated the need of cancer patients and survivors regarding diet, exercise, and weight management. James-Martin and his team found that patients thought there was a lack of information regarding diet and exercise during and after conventional treatment. As mentioned, those receiving nutritional counseling during and after treatment had better outcomes and reduced side effects. Other holistic interventions also play a significant role in cancer treatment outcomes, and prevention of cancer progression.

We know research from the National Cancer Institute and the European Prospective Investigation into Cancer (EPIC) study demonstrates that exercise is the number one factor correlated with remission and cancer prevention. Exercise, both aerobic and resistance training, is important for preventing and decreasing side effects associated with cancer treatment like muscle wasting, fatigue, osteoporosis, and self-esteem. Physical activity can directly affect tumor growth by modulating inflammatory responses in the tumor mass microenvironment. This is an extremely important finding as it relates to recurrence and remission. There are other long-term symptoms that can be addressed by exercise as well. Fatigue, muscle loss, circulation, decreased stamina, and bone loss associated with cancer treatment is simultaneously
associated with loss of overall muscle mass. Fatigue associated with muscle loss is in turn associated with increased risk of developing osteopenia and osteoporosis. Hormone treatments using aromatase inhibitor like Anastrazole put patients at a high risk of developing osteoporosis.

The other reason addressing nutrition, exercise, and emotional needs is important is that these therapies help to decrease the fear associated with long-term side effects of cancer treatments, namely chemotherapy, radiation, and hormone therapy. Studies and statistics do show that use of these vital therapies come with long-term risks, including the development of second cancers such as leukemia. The fear of developing side effects during treatment and during recovery is a weight that creates an immense amount of anxiety. Holistic plans can have a positive effect on quality of life and substantially decrease anxiety and worry for cancer patients. In addition, they can return some sense of agency and self-control to patients.

That is why this book is a vital resource for anyone diagnosed with cancer. There is an obvious need for a comprehensive holistic resource for cancer patients, oncologists and even pharmaceutical companies, that addresses minimizing short- and long-term side effects, and therefore the negative association patients have. This guide provides solutions rather than just highlighting the problematic and burdensome side effects of treatment.

This book is written for cancer patients and their families who would like to use a comprehensive, complementary approach.

Suggestions are based on the general recommendations of the Commission on Cancer and guided by statistical data gathered by the National Cancer Institute to address healing through cancer treatment and beyond. Information presented is supported by hundreds of scientific studies.

This book contains holistic information specific for breast cancer and will

- Help you understand your treatment
- Help you understand the possible long- and short-term side effects and provide some solutions to preventing or decreasing them
- Exists as a guide for appropriate and safe levels of nutrition via food to use during each treatment phase into recovery (includes 30 recipes)
- Provide you with suggestions for appropriate and safe exercise
- Articulate questions and feelings you might be experiencing throughout treatment and into recovery; and options for therapies that help to restore emotional well-being
ORGANIZATION OF THE BOOK

This book is organized by chapters. Chapters 1 and 2 explain conventional treatments for breast cancer, how they work, physiological and emotional side effects. The remaining chapters are dedicated to helpful solutions including nutrition and recipes, exercise, and mind–body therapies.

Within the first chapter, you will find brief descriptions of each treatment type (chemotherapy, radiation, surgery, and hormone therapy), the objective, and its effects on your body. The second chapter focuses on the impact diagnosis has on mental health and how treatment affects your immune system and emotional well-being.

Chapter 3 contains recipes with information related to nutritional content. Chapter 4 focuses on exercise specifically geared to reducing side effects of treatment and promotion of remission. Each exercise is described and includes benefits and a suggested heart rate or goal frequency.

Because there are unique mental health challenges that arise because of diagnosis and treatment, the final chapter is devoted to different mind–body therapies for nurturing emotional well-being. Each suggestion includes a description of the therapy, its goal or purpose, and, also, information on how to contact appropriate professionals in your area.

The book concludes with helpful appendices to guide you to professional organizations and resources for further information.

This book is best used throughout the whole duration of treatment, though is also very beneficial through recovery and during maintenance as well.

As soon as I got the diagnosis, I began to look for what else I could do to help the process. I knew there were things that I could do to help myself through treatment to keep me strong, side effects low and keep cancer from coming back. I changed my diet and started being more selective about what goes into my body. I also started on a regular exercise routine to combat fatigue and also for stress. I became more consistent with my yoga practice. All of these things made a difference, and I continue them all to this very day. They're not prescriptions, but I treat them like that.

—K. C.
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Breast Cancer Thriving Through Treatment To Recovery
Breast cancer, besides skin cancer, is the most common cancer occurring in women, accounting for 12.4% of all new cancer diagnosis. Breast cancer treatment, however, does not fall into a one size fits all. Treatment depends on the extent of, and progression of the disease, on the individual, and on other illnesses that the patient might have.

What is for certain is that many women diagnosed with breast cancer will live for many years or decades with cancer, or after being treated for the cancer and declared with No Evidence of Disease! Even more hopeful, biotechnology and immune therapies are moving at light speed ahead. This will enable treatments to be even more effective, less invasive, and more individualized.

Breast cancer patient’s treatment protocols can fall into several categories based on the location, extent of the disease, hormone receptor status, genetic mutations, age of patient, and other illnesses. In general, there are four different types of treatments:

- Surgery
- Chemotherapy and immunotherapy
- Radiation
- Hormone therapy

So how is it determined which treatment is best for you?

Many clinicians follow standardized protocols for newly diagnosed and reoccurring breast cancer. Treatment protocols may change based on patient...
response to treatment, genetic mutation status, or progression of the disease. Let us look at the standard treatments used and the objective of each.

**SURGERY**

Surgery is a local treatment aimed at directly removing the visible tumor mass and exploring the extent of spread in lymph nodes. Most breast cancer patients will have some type of surgery. The exception may be with patients diagnosed with Stage IV metastatic disease or may depend on the location of the tumor. There are different types of breast surgery that may be done, all with specific objectives:

- **Biopsy.** This is the initial surgery used to determine whether tissue is benign or cancer. Usually one to several tissues are sampled using a needle.

- **Lumpectomy.** This is a breast-conserving surgery where only part of the breast containing the cancer is removed. Patients opting for lumpectomy usually will have to undergo radiation treatment. According to the American Cancer Society (ACS) when comparing mastectomy versus lumpectomy, mastectomies do not give you any better chance of long-term survival or a better outcome from treatment.

- **Mastectomy.** This surgery involves removing all the breast tissue. This can involve removal of one or both breasts. Patients opting for mastectomies usually do not have to undergo radiation as an additional treatment, but this can vary.

- **Sentinal lymph node dissection/axillary lymph node dissection.** Cancer usually spreads first to lymph nodes under the arm. This surgery removes one to several lymph nodes to determine if and how far the cancer has spread. It is used to determine the extent and type of treatment that will be used.

- **Breast reconstruction.** This surgery usually occurs after chemotherapy and radiation and is meant to restore the shape of the breast. It can involve use of expanders and/or redistribution of abdominal fat in reconstructing the tissue.
Side Effects of Surgery

Surgery and medications given to control pain can cause an array of side effects. The natural response to any tissue damage by the body is inflammation and restoration. The body mobilizes resources such as protein and specific enzymes requiring nutrients to repair the damage. In particular, the body uses vitamin C, E, B₆, magnesium, and an array of micronutrients.

Drugs given to control pain can create other side effects including severe constipation which can greatly impact quality of life. Other side effects include fatigue, loss of mobility, headaches, neurological pain, and lymphedema.

CHEMOTHERAPY

Chemotherapy is also called a systemic therapy because it affects cells in the entire body. Because cancer cells divide faster and more aggressively, these medications have most of their effect on tumor growth, but also can affect normal cells. Chemotherapy is used to “catch” cancer cells not removed after surgery, or to reduce the size of tumors prior to surgery. Chemotherapy is also used to slow the growth of cancer cells in more advanced cancers.

Chemotherapy works by interfering with the cell’s mechanisms for growth and development. There are several different types of medications that all work in different ways. The most common types are

- **Alkylation agents.** These agents affect the cell cycle by creating damage to the DNA and other structures. Patients should proceed with caution when using antioxidants in combination with these therapies. Some commonly used examples falling into this category are Carboplatin, Cisplatin, Oxiliplatin, and Lomustin.

- **Plant alkaloids.** Plant alkaloids were initially discovered and isolated from certain types of plants like periwinkle, the Pacific yew tree, and the Happy Tree. They function by interfering in cell division during various phases. Some commonly used examples include Vincristine, Paclitaxel, Docetaxel, Etoposide, and Irinotecan.

- **Antimetabolites.** These agents mimic naturally occurring substances involved in cell division (RNA and DNA components) and growth. When the agent substitutes itself during the process, cell
division can no longer happen because ultimately, the cellular apparatus cannot recognize and use it. They are classified by what substances they mimic. Some examples include Methotrexate, 5-fluorouracil (folic acid), Gemcitabine, and Foxuridine (pyrimidine).

- **Topoisomerase inhibitors.** These therapies interfere with very important enzymes involved in cell division which affects the proper structure of DNA. Some examples include Irinotecan and Etoposide.

- **Immunotherapies.** This category is also known as antitumor antibodies or monoclonal antibodies. They work in a very different way than the previous categories, as they are more directed but still have systemic affects. Antibody therapies work by attaching themselves to antigens on the surface of cancer cells or cell receptors. Once they attach, they can recruit other parts of the immune system to destroy these cells. Some commonly used examples include Herceptin and Kadcyla (TDM-1), both used in Her2 positive patients, Avastin, and Erbitux.

### Side Effects of Chemotherapy

Most chemotherapies, including targeted therapies, affect all cells of the body. We call their effect systemic. As we have seen, all more or less act on the ability of cells to divide or involve DNA damage. Normal cells most affected by these affects are mucosal cells, which are any cells along the gastrointestinal tract (e.g., from the mouth to the anus). These cells divide quickly and are most subjected to the action of chemotherapy. Not surprisingly, many of the side effects we see involve gut issues and nutritional deficiencies. Side effects include nausea, loss or alternations in taste, loss of appetite, constipation and/or diarrhea, and fatigue. Other symptoms include hair loss (not all therapies), decreases in red and white blood cells, and problems sleeping.

In general, nutritional deficiencies occurring during chemotherapy include potassium, magnesium, calcium, phosphorus, carnitine, taurine, and glutamine. It is important to note that nutrient deficiencies will vary and be dependent on individual profiles and therapy type. It is important for each patient to be individually assessed by a professional.
RADIATION

Radiation therapy, also known as radiotherapy, is a local targeted treatment which uses high dose, focused radiation to kill cancer cells. It is used after surgery directly in the area from which the tumor was removed to reduce the risk of recurrence. It is also used directly to kill tumors. In both cases, the objective is to damage the DNA of the cell.

External beam radiation is the most commonly used form. It is targeted and focused. Some radiation oncologists will also use whole breast radiation in certain cases. This involves radiating a larger area of the breast. Tissues that might be treated include breast areas, lymph nodes, and other areas that might be involved in the spread of cancer.

This therapy is effective because cancer cells, unlike normal healthy cells, are not able to effectively repair damage, and thus, are more prone to death. Radiation does cause damage to normal, healthy cells, but these cells are more resilient and more effective at repairing themselves than cancer cells are.

Radiation treatment is usually a lot faster and more simplistic relative to surgery or chemotherapy treatment. Patient visits usually last no more than 13 to 30 minutes 5 days a week for several weeks. This will vary depending on the assessment and recommendations by your oncologist.

Side Effects

The most commonly reported side effect from radiation treatment is by far fatigue. The fatigue is cumulative over the several week course of treatment. Fatigue may be related to several factors, but two greatly contribute to this side effect. When patients are treated with radiation, there is damage to normal healthy cells as well as cancer cells. The body immediately acts to repair itself, mobilizing needed resources, in particular protein, magnesium, and other vitamins like vitamin C and B_6_.

Daily radiotherapy can also take a psychological toll which can affect energy levels as well. Though treatment is short, daily reminders of a cancer diagnosis can contribute to some transitional depression that may be associated with fatigue.

Other common side effects include skin irritation to burns, arm pit irritation followed by decreased range of motion. Radiation travels through layers of epidermis, and thus it is important to treat the affected area daily.
Decreases in white blood cells can occur. Less likely with advance technology, are heart and lung damage.

**HORMONE THERAPY**

Hormone therapy is also known as selective estrogen degraders and endocrine therapy. It is very different from hormone replacement therapy (HRT) and quite the opposite. With hormone therapy, oncologists are looking to decrease exposure and production of estrogen, while with HRT, estrogen is looked to be increased through taking prescribed hormones.

HRT is a standard option for patients with estrogen-sensitive breast cancer. The objectives are to

- Lower the concentration of hormones in the body
- Block the action of estrogen on breast cancer cells

There are several types of hormone therapies used in treatment of hormone-sensitive breast cancer. These include Tamoxifen, Evista, and Fareston. These are selective estrogen receptor modulators and they block the action of estrogen. Aromatase inhibitors include Arimidex, Aromasin, and Femara. These act to lower the amount of hormone produced by the body.

**Side Effects of Hormone Therapy**

The objective of hormone therapy is to quickly reduce the production of estrogen or the availability of estrogen in patients with estrogen-sensitive breast cancers. Estrogen plays a protective role for the heart and bones, and plays a slight role as an anti-inflammatory.

Quick withdrawal of estrogen is frequently associated with menopausal symptoms, including the common side effects of hot flashes and night sweats. Mood changes, including depression can be included into this category as well, in addition to sleep disturbances.

The issue that seems to create the most problematic side effect is joint pain and tenderness. Sometimes this issue becomes such a debilitating problem that women choose to stop treatment rather than stay on it with a severely negative quality of life.

Long-term side effects are osteoporosis and heart disease. As well, second cancers can be caused by the use of chemotherapy.
It is important to include diet, supplement, and exercise that support bones and heart function, and which are anti-inflammatory. We will take a look at plans in Chapter 3.

NONSTANDARD OPTIONS

In my practice, I have been asked frequently about the validity of nonstandard therapies in the treatment of breast cancer. Because of my conventional training as a biochemist, my answer is always the same: nonstandard options are therapies not supported by rigorous scientific studies and statistics, and therefore involve significant risk, along with lack of guidance when choosing them. One in particular comes up: Intravenous (IV) vitamin C therapy.

The National Cancer Institute is monitoring data for IV vitamin C therapy closely. The protocol used for IV vitamin C developed at the University of Kansas Medical Center in the 1970s. It has long been controversial, and at the writing of this book, while data looks interesting and promising, no standardized protocols, and little evidence of its effectiveness exist.

Research have recently grown interest in preliminary data showing a trend toward IV vitamin C boosting the effectiveness of other (radiation and chemotherapy) treatments. This needs to be thoroughly researched, however.

Oh gosh, I think I was more afraid of the chemotherapy treatment than the cancer, I think. I had a very close friend who was treated, and it was not a pretty sight. I didn’t have a very good impression. I asked my oncologists so many questions. I asked them about lots of stuff including nutrition. They didn’t know anything about nutrition. I had to find someone to help me with nutrition if I was going to go through with the treatment for my family. I did. I found Dr. Price and she helped me put together a whole plan that addressed a lot of my fears. I did a lot of things. I did okay through treatment. It was much different than what my friend went through. I can’t help but to think it was because of what I was doing with food and my diet.

—R.S.