



*Susan*

*I am as emotionally sound as any woman nearing forty can be with a tragedy rearranging her life. Just the other day while I was taking a shower I found a small lump. I had minor surgery to remove the tumor. My doctor has told me that I have breast cancer and must have a mastectomy. Now I have so many worries. Maybe last year I could have taken this news better, but I've just been married again and my future was looking so promising. My older daughter will be fine, but can I hope to live long enough to see my ten-year-old graduate from high school?*

*I've had friends with cancer and they did not do well. The treatments they were given seemed to do more harm to them than the cancer, until their last days. I've read so many things lately about new ways to treat cancer and that there are many controversies among doctors about the best treatments. Certainly I need to know more about what is wrong with me and what I can do to pick up the pieces.*

# 2

## CANCER

**From what I've told you do you think I should go ahead with a mastectomy?**

That depends on what your goals are. If you don't want to defy and offend your doctor or worry your well-meaning friends and relatives, then do what almost everybody does. Have your breast amputated.

If you want to enjoy a healthier life and possibly a longer one, then you need to learn a lot more about your problem and begin making informed decisions. If you don't know much about breast cancer, now is the time to ask questions, not later after you've been through the surgery and the other treatments that will be prescribed "in your best interest."

**Why me? How did I get cancer? I can't recall hurting myself.**

Yours is a common reaction.<sup>1</sup> But breast cancer does not result from injuring your breast. A sharp or blunt object striking your breast causes no trouble other than the obvious damage from the blow. Scientific evidence is becoming convincing that the actual abuse that led to this cancer was inflicted by way of your knife and fork at the dinner table.

**Both men and women eat the same kinds of food. Why does breast cancer affect women most of the time and men only rarely?**

Breast tissues are responsive to female hormones, called by the general name of estrogens. The more estrogen a woman produces to stimulate her

breast tissues, the more likely it is that cancer will develop. This association of cancer with female hormones is inescapable when you consider that breast cancer is 100 times more common in women than in men.<sup>2</sup> The disease occurs only after puberty, and a longer menstrual life means a greater probability of developing breast cancer. Furthermore, if a woman takes estrogen pills the likelihood of developing breast cancer is increased.<sup>3</sup> In women whose ovaries are removed early in life, the risk of developing breast cancer is greatly reduced. This cancer is almost unknown in women who never develop ovarian function.<sup>2</sup> Also, the amount of estrogen in a woman's body will influence the rate of growth of an established breast cancer.<sup>2</sup> Therefore, estrogens appear to be involved closely with the cause and development of breast cancer.

**How can something in my diet affect the estrogens in my body and cause breast cancer?**

Consider that each day the average woman consumes somewhere between one and four pounds of food. Nutrients and other substances are absorbed through the intestinal wall into the bloodstream and travel to all parts of the body, including the breast tissues. One source of estrogens can be the hormones that are fed to poultry and beef to make them grow faster. In some foreign countries, where the use of food additives is not regulated carefully by the government, significant amounts of estrogen residue can remain in the foods and have dramatic effects on people who eat them. In Puerto Rico and Italy, for example, there are cases where very young boys and girls have developed breasts, and little girls have started their menstrual periods much too early because of hormones in the meats they've been fed.<sup>4,5</sup> Presumably, levels of hormones in poultry and beef raised in the United States are more closely watched. In the American diet, hormone residues in animal products are unlikely sources of increased estrogens.

**What is the reason for high estrogens in women in the United States?**

In affluent countries like the United States, the biological link between food and diseases of the breast is formed during the metabolism of naturally produced hormones in the human intestine. Estrogens are produced by the ovaries, adrenal glands, and certain other body tissues. After circulating throughout the body, eventually these estrogens are excreted by way of the liver into the intestine. In this process, the estrogens must be combined with another nonabsorbable substance that is produced by the liver and then eliminated in that "complexed" form. If they are not complexed, free estrogens would be reabsorbed into the body through the intestinal wall.<sup>6,7</sup>

Fats in foods encourage certain species of bacteria to grow in the colon. These bacteria have the special ability to split the complex molecule formed by the estrogens and the substance from the liver. As a result, the excreted estrogens are freed and are readily absorbed back into the body. The long-term result is higher levels of these powerful hormones in women who eat foods rich in fats, which, of course, is the typical diet consumed by people in affluent societies.<sup>8</sup>

Another reason for higher estrogen levels is obesity. Being overweight is a common consequence of a high-fat diet centered around dairy and meat products and foods that are processed in oils. The body's fat converts male hormones, generally called *androgens*, and naturally present to some degree in women, into more estrogens.<sup>9</sup> The more body fat a person has, the more estrogen her body will produce. Also, as women grow older their bodies become more efficient at the conversion of androgens into estrogens; because of this conversion, estrogen levels increase from this source with age.<sup>10</sup>

#### **How are estrogens involved in cancer?**

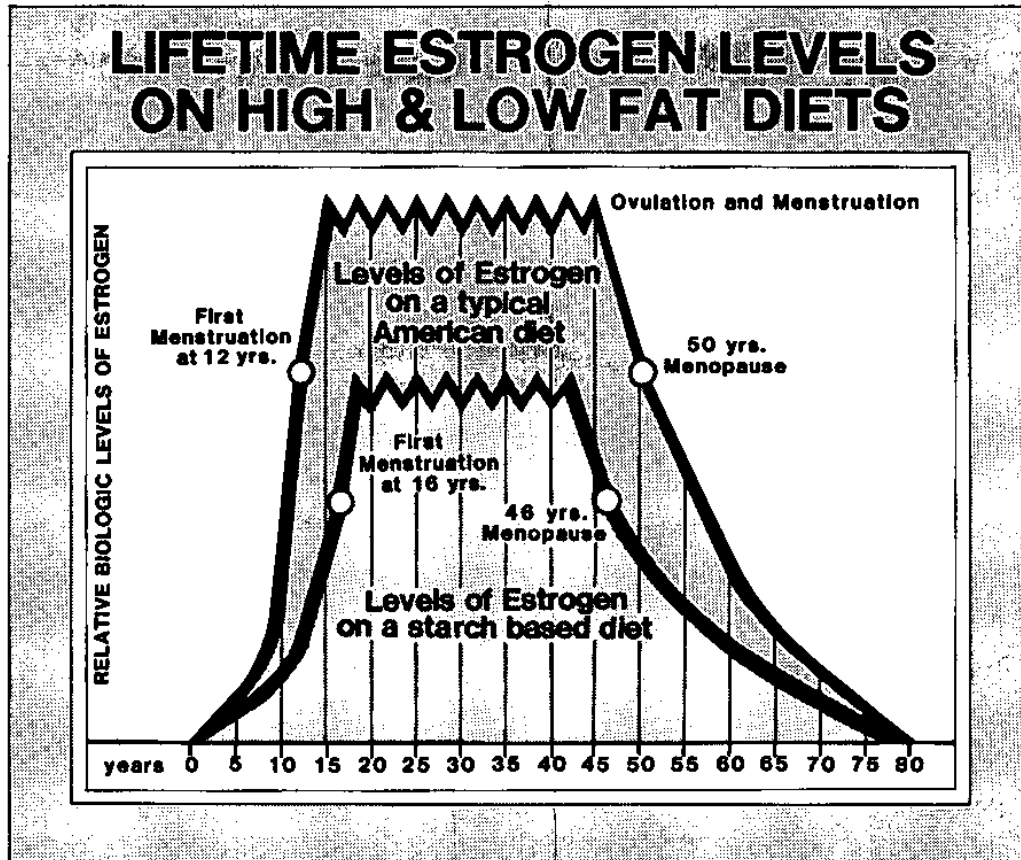
Excess amounts of certain kinds of estrogens will overstimulate the growth and activity of hormone-responsive tissues such as those found in the breast. By some mechanism still undetermined, this continuous stimulation contributes to the cancerous changes that eventually give rise to a tumor. The kinds of estrogens that are believed to be involved in the cause of cancer are called *estrone* and *estradiol*. A third kind called *estriol* is believed to be somewhat protective against cancer.<sup>11</sup>

#### **Then most women must be at risk, because we all eat basically the same diet. How common is breast cancer?**

Breast cancer is the single most common form of cancer found in women who are middle-aged and older. Approximately one out of ten women living in affluent countries will develop this disease. At the present time in the United States 120,000 new cases are recognized annually, and the numbers are increasing.<sup>12</sup>

#### **What happens in countries where women eat low-fat diets and stay trim? Do they get breast cancer less often?**

Bacteria living in the colons of people on low-fat, high-fiber diets centered around starches convert very little excreted estrogen into the absorbable form, and as a result more of this hormone is eliminated from the body.<sup>6</sup> The higher quantity of fiber in a vegetable-based diet may also



Levels of certain powerful estrogens are 50 percent greater during the reproductive years when women consume a high-fat (typical American) diet compared to women on a low-fat (starch-based) diet.<sup>14</sup> The first menstruation begins four years earlier and menopause starts four years later for women following a high-fat diet.<sup>15,16</sup>

act as a kind of barrier to reabsorption of estrogens.<sup>7</sup> Obesity is rare among women following a starch-based meal plan. As a result, women living in societies where the diet is low in fats and animal products have lower levels of cancer-related estrogens and lower rates of breast cancer.<sup>8,13</sup>

A comparison of vegetarian women with women who eat meat revealed a lower intake of fats in the diets of vegetarians. Vegetarian women excreted two to three times more estrogen in their feces than did nonvegetarians.<sup>14</sup> Also, the level of cancer-related estrogens in the blood of the meat-eating women was 50 percent higher than in vegetarians.<sup>14</sup>

Young girls raised on a high-fat diet start their first menstruation approximately four years earlier than those girls following a low-fat starch-based meal plan—twelve versus sixteen years.<sup>15</sup> A similar effect of lengthening the menstrual life of a woman occurs at the end of her reproductive years.

Menopause begins approximately four years later for those women on a high-fat diet, compared to those on low-fat diets—fifty versus forty-six years.<sup>16</sup> This increase in the years of menstruation are the result of the effects of the additional estrogens in a younger and older woman's body caused by the fat in her diet.<sup>17,18</sup> Early onset of menstruation and late menopause are each associated with approximately twice as high a risk of developing breast cancer as compared to women with a shorter menstrual life.<sup>19,20</sup>

**I wish I had known how important fat and estrogens were before I got cancer. Will this information be of any help to me now?**

Yes. You must understand the control you can have over your body's estrogen levels because of their importance in your treatment. We will talk about this later.

There is another important reason for you to know about the causal relationship of diet and breast cancer: mother teaches her daughters how to cook and what foods to like. Studies show that because you have developed breast cancer at an early age, your daughters have almost twice the usual risk of developing breast cancer.<sup>21,22</sup> The risk for daughters, and also sisters, of women with breast cancer developing this disease, themselves, can be as great as 50 percent under certain circumstances.<sup>21-23</sup> Some of this increased risk may be from a genetic tendency to be more susceptible to this cancer. More likely, most of this greater risk for breast cancer, as well as many other "family" diseases, is passed along to children through the education they receive in the home while growing up.

**Since I'm younger than most women who get breast cancer, is there anything special I should know?**

Many investigators believe that younger women with breast cancer have a much worse chance of surviving than older women. However, when all factors are considered, the fact that you are young is not necessarily associated with a worse outcome.<sup>24</sup> Approximately 20 percent of women with breast cancer are diagnosed before menopause and the other 80 percent are postmenopausal when the cancer is discovered.<sup>25</sup>

Some women in the reproductive age group may wonder how a pregnancy might affect their life and their cancer. Hormone levels do change considerably during pregnancy, and therefore a change in the growth of the cancer might be anticipated. Fortunately, all the changes that occur during pregnancy and lactation do not adversely affect the survival of the mother.<sup>26</sup> Termination of pregnancy, although it is recommended by some physicians, does not alter the outcome for the patient.<sup>26</sup> Radiation and chemotherapy, however,

can have a serious adverse effect on the unborn baby. A woman with breast cancer must realize that her life expectancy probably will be shortened before she accepts the additional responsibility of bearing more children.

We will discuss some other factors concerning diagnosis and treatment that are related to your age and reproductive status later.

**I've had lumps in my breast most of my life that doctors always called fibrocystic disease. Could one of these have turned into cancer?**

Fibrocystic disease of the breast is characterized by lumps and bumps and tenderness especially when your estrogen levels are high just prior to your period. At least 50 percent of women in our country have these breast changes during their reproductive years.<sup>27</sup> Fibrocystic disease is believed to be the result of stimulation of the breasts by estrogens along with varying cyclic stimulation with other female hormones.<sup>28</sup> Some studies have indicated that women with fibrocystic disease have about three times the risk of developing breast cancer.<sup>29</sup> This should not be too surprising since estrogen stimulation of the breast seems to be involved in the development of both conditions. A preliminary study has shown that changing to a low-fat diet not only reduced the levels of estrogen, and other breast-stimulating hormones in women with fibrocystic disease, but has also improved the breast pain associated with the condition in all of the women studied.<sup>30</sup>

Other dietary causes of fibrocystic breast disease have been suggested. Caffeine and related chemicals will stimulate the breast tissues and are believed to account for some cases of this disease.<sup>31,32</sup> Reports indicate marked improvement in the painful breast tissues and resolution of lumps after removal of these stimulating chemicals for many women with this disease.<sup>31,32</sup>

Fortunately, of all the biopsies performed on suspicious lumps approximately 75 percent are found to be fibrocystic disease and other noncancerous tumors.<sup>33</sup> The other 25 percent of the time the news is not so good.

**It has always been hard for me to tell which lumps I should worry about. However, this one did feel distinctly different. Do you think a yearly mammography would have discovered the cancer early enough to make a difference for me?**

Mammography can detect a tumor earlier than self examination can. Studies have found that women over the age of fifty benefit from periodic examinations with mammography; as much as a one-third decrease in death rate is gained in postmenopausal women who undergo screening with mammography.<sup>34-36</sup> However, some questions concerning the usefulness of mammography still need to be answered: are lives actually being prolonged

by this screening technique, or are we simply finding the cancers earlier with mammography, and thereby many women only appear to live longer because of an earlier discovery?<sup>37,38</sup> If, on the average, cancer is found a year earlier, and if, on the average, the patients then live a year longer from the time of diagnosis to death, the examination has really not had any beneficial effect. Recent studies have tried to resolve this problem of apparent versus real benefit for women screened with mammography.<sup>34-36</sup> There now appears to be a real improvement in short- to intermediate-term survival for women over fifty years old. Still another unanswered question is related to the advantages suggested by this data. Do the improved survival rates seen in the initial studies of detection by mammography represent permanent cures for these women above the age of fifty, or do they represent only postponement of death from breast cancer?<sup>34,39</sup>

You are in your late thirties; therefore, according to the results of these studies, you would not have benefited from mammography. The reason for the lack of benefit in women under fifty years of age is unknown. One theory proposes that the difference may lie in the possibility that cancers of postmenopausal women may spread more slowly than those found in premenopausal women. Some older women may have their cancers detected and removed before significant spread has occurred.

These findings and the conclusions drawn from them are still preliminary, and changes in recommendations for mammography are likely; they will be based upon the results of ongoing studies.<sup>37-39</sup> At present, most doctors recommend a first mammography for a woman sometime around forty, then yearly examinations after she reaches the age of fifty.<sup>40,41</sup> Certain women who are at higher risk may be recommended for earlier and more frequent examinations. If a tumor is detected by this method, the treatment would be no different from the one for a tumor found, as yours was, by feeling for a lump.

### **Are mammograms dangerous?**

The hazard from radiation is very small, but it is still present, even when proper equipment and technique are used. The human organ most sensitive to the cancer-causing effects of radiation is the female breast.<sup>42</sup> It is even more sensitive than the bone marrow, the lung, and the thyroid gland. Studies done in various X-ray facilities have found that the dosage given for a mammogram can vary as much two hundred-fold with different techniques and equipment.<sup>43</sup> If a woman over fifty decides to have yearly mammographs, she should learn the necessary details about the X-ray department she chooses. She should ask about the age of the X-ray machine, whether or not the equipment was specifically designed for mammography,



the number of such studies the department does in a year, and the qualifications of its staff.

One of the biggest concerns about the routine use of mammography is the increased number of biopsies generated solely because of the screening that otherwise would not be done. Between five and ten biopsies turn out to be normal for every one that is cancerous.<sup>37</sup> The emotional and other costs of so many negative biopsies are far from trivial.

**I had a mammograph taken just before my biopsy and it was normal. Does this happen often?**

Mammographs miss 10 to 30 percent of cancers; therefore, a report that an X-ray is "normal," showing no suspect tumor, does not rule out cancer.<sup>38,44,45</sup> Because of incorrect information from a mammography X-ray, the diagnosis of breast cancer can actually be delayed. For all kinds of cancer, the diagnosis is made only after microscopic examination of surgically removed tissues by a qualified pathologist. Therefore, worrisome lumps, in spite of a negative mammography, must be removed and examined microscopically for the presence of cancer cells.

One more concern is that some tumors found by mammography and classified as cancer never threatened the patients' lives, because actually they were not true cancers. When reviewed by another pathologist at a later date too many of these specimens receive a non-cancerous diagnosis.<sup>37</sup> In one study of 506 small tumors detected by mammography and removed, on later review, 66 were reinterpreted as non-cancerous and 22 others were reinterpreted as "borderline."<sup>46</sup> Extensive surgery when performed on these women was, of course, not justified.

**Are better techniques available for finding cancer?**

Another early detection method is thermography, which detects differences in the temperatures of the skin and underlying tissues. Cancerous tumors should show up hotter. The technique has no adverse effects. However, the results from screening programs have been very disappointing because so many cancers are missed, and therefore the technique is not considered acceptable for general screening.<sup>47,48</sup> Ultrasound, using high-frequency sound waves, has been limited to the evaluation of breast masses and is not useable for screening.<sup>47,48</sup>

Ninety percent of patients find lumps by themselves. The rest are found by doctors during routine physical examination.<sup>49</sup> Self-examination has been recommended for years as an effective means for early detection. Even though this technique is cheap, safe, and readily available, the evidence to date has not been convincing that routine breast self-examination saves lives through early detection.<sup>38,41</sup>

Deciding which lumps are suspect and in need of further examination is often a difficult problem. A cancer in the breast is rarely painful. Cancers are usually very hard and irregular to the touch and are often attached to surrounding tissues. A lump that is not cancer more likely would be tender and soft and would roll freely under the fingers.<sup>33</sup> An experienced physician can increase the probability of a correct diagnosis and would not order biopsies unless he or she thought they were likely to be confirmed as cancer.

Screening programs also heighten cancerophobia in our society. Some of this fear is justified since a recent autopsy series on women older than 20 years, without a previous history of breast cancer, revealed that nearly 20 percent unknowingly had invasive breast cancer or premalignant lesions.<sup>50</sup> Fortunately, only 10 percent of women in Western societies develop obvious breast cancer in their lifetime.<sup>12</sup>

**Do you think it is worthwhile for a woman to have mammography and self-examination?**

Yes, routinely for women over fifty who consume the high-fat American diet. With the present general high risk that women in this country have for developing breast cancer, early detection techniques have potential benefits for the individual patient. One unquestionable advantage is that when a breast cancer is found by mammography or frequent self-examination, it is usually very small and therefore easily removed by a nondeforming lumpectomy; mastectomy can be avoided. As mentioned, early studies indicate that for women over fifty life appears to be prolonged when tumors are found by mammography. Women following a low-fat diet have a much lower risk of developing breast cancer, and therefore less potential for benefit from routine mammographs. Yearly mammography in these lower risk women is unlikely to be found justifiable by a cost-risk-benefit comparison.

The most serious problem I see with efforts directed toward early detection is that they divert health dollars away from preventing breast cancer. The cost for screening every woman over the age of fifty in this country with a single examination would be over 2.25 billion dollars each year at 75 dollars per mammogram.<sup>40</sup> The cost for each cancer found by mammography is very expensive: \$195,000 per cancer detected.<sup>38</sup>

Currently, efforts are no longer placed on yearly chest X-rays to detect lung cancer early and thereby to reduce the number of deaths from that disease.<sup>40</sup> Instead, people are being taught to stop smoking. I believe that teaching women to follow a low-fat diet is a more sensible approach to preventing breast cancer deaths than annual mammography, and a better way to spend our limited health dollars. Certainly, eating a proper diet would have a far greater impact on the incidence of this disease, since

efforts toward early detection can do nothing but increase the number of tumors found. Can you imagine how much valuable information about health and its relationship to diet could be provided to the public with over 2 billion dollars a year? Women would benefit by a decreased incidence of breast cancer among those who followed a more sensible low-fat diet. In addition, most diseases that affect men, women, and children in this affluent society would be reduced in incidence when people accept this effective diet and make other healthful changes in their lifestyles. This all requires a national reeducation program and money to support it.

**My other doctor said that because of some law he had to give me a brochure, which listed my options for treatment. His recommendation was a mastectomy. I think he said, "that's the only operation I do, take it or leave it."**

Several states now have laws requiring physicians to give breast cancer patients information on options available, and a brochure is usually a part of the packet.

You have many options to choose from and you are the best qualified person to make these important decisions. After all, who has more to gain or lose from the treatments selected? I would like to tell you about the different therapies that are available. You can read more about them in the many articles found in university or medical libraries. Above all, take the time to consider your options and to think things through.

#### **Is very much actually known about this disease?**

This kind of tumor is one of the most accessible and easily diagnosed of all major forms of cancers. Breast cancer has been studied for centuries, and it was one of the first kinds of cancers that physicians tried to treat by surgical intervention. In America at the end of the nineteenth century, radical mastectomy was introduced by Dr. William Halsted of Johns Hopkins University Medical School.<sup>51</sup>

Incidentally, Dr. Halsted's operative reports describe breast cancers that measured 8 by 7 centimeters or about the size of an orange, as *small* cancers.<sup>52</sup> Years ago many women delayed seeking medical attention until the tumor was quite large and the disease well advanced. Because of this delay the number of years from surgery until death were fewer than today when the tumors are brought to the doctor's attention much earlier. With more physical self-awareness, frequent breast self-examinations and the use of mammography, tumors found these days by women are often one centimeter or less—the size of a pea. Because the disease is now detected at a much earlier stage, women have many more years from the time of surgery until they die of their breast cancer.

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**What are my choices?**

Since the introduction of radical surgery by Dr. Halsted more than ninety years ago, a number of surgical approaches have been devised to remove the tumor. In addition, radiation has been tried at different stages of therapy in hopes of improving the length and quality of life for women affected by this disease. The effectiveness of each method of treatment has been tested by many practitioners, and the results of their observations are available to doctors and patients who make the effort to study them.

This list presents a brief summary of several surgical procedures that have been used.

**Biopsy:** removal of a small piece of the suspected tumor for laboratory analysis.

**Lumpectomy:** removal of the entire tumor only, not adjoining tissues.

**Partial or segmental mastectomy:** removal of a large section of breast with tumor and surrounding tissues.

**Simple mastectomy:** removal of entire breast.

**Modified radical mastectomy:** removal of entire breast as well as adjacent lymph nodes in the axilla (armpit).

**Radical mastectomy:** removal of entire breast, lymph nodes in axilla and underlying chest muscles.

**Extended radical mastectomy:** removal of entire breast, lymph nodes in axilla, underlying chest muscle, and lymph nodes next to the sternum (breastbone).

**I heard that many doctors consider the radical mastectomy as the best treatment.**

The radical mastectomy has been used as the standard with which to compare other procedures. However, to date no significant advantage of one surgical approach over another has been found, as far as survival of the patient is concerned.<sup>38,53-71</sup> A disappointing but well-researched conclusion for you to know is that, despite improved surgical techniques, advanced methods of radiotherapy, and the widespread use of chemotherapy, the death rate from breast cancer has not changed during the last seventy-five years.<sup>53</sup>

I'm sorry to present you with such dismal facts, but you must be informed enough to make the decisions that will have profound effects on your life.

**Do other doctors really understand that all these treatments are not prolonging lives?**

Most of them do. Unfortunately, a few share with their patients a world of hopes and dreams. Actually, the lack of appreciable differences in the results from various methods has led to a fatalistic attitude in the medical profession regarding the effectiveness of surgery in treating breast cancer. C. Barber Mueller, head of the Department of Surgery of McMaster University in Ontario, analyzed data collected over nineteen years on 3558 women with breast cancer from the Cancer Registry at Syracuse, New York. He concluded that "age, stage, or type of growth, operative therapy, or time at risk do not determine the time of death or alter the 90 percent certainty that death will be due to cancer of the breast."<sup>63</sup> Long-term studies of patients, treated by the best therapies medical science had to offer, confirm that at least 75 percent of the women who are diagnosed as having breast cancer will die with evidence of active disease in their bodies.<sup>54,57,67,71</sup> In other words, it is beyond denying that the treatments given have failed to cure these women. One startling finding is that twenty years after diagnosis, 80 percent of the women diagnosed as having breast cancer will be dead; 88 percent of these deaths will be due to breast cancer.<sup>71</sup>

**Why don't surgery and radiation succeed in curing this cancer?**

The use of extensive local therapies, such as mastectomies and radiation is based on the belief that breast cancer is a disease confined to the breast at the time of diagnosis and that removing the tumor in the breast will halt the disease.<sup>72</sup> Failure to improve survival rates by treatments directed at the tumor in the breast indicates that this theory is wrong.

A review of the natural history of the disease will help you to understand why cancer of the breast is rarely curable, if ever, with present treatments.<sup>73</sup> Studies have shown that breast cancer begins with the change of a healthy cell into a malignant one.<sup>73</sup> This transformed cell then grows at a steady rate. The time one cell requires to divide into two cells is called the doubling time. The average doubling time for breast cancer cells is approximately 100 days. In other words, 100 days after the beginning of the cancer in one cell, two malignant cells are present in the breast; at 200 days, four such cells are lurking there; and after one year, twelve cells have formed. At this rate of *doubling*, in six years the cancer mass contains one million cells and is the size of the point of a pencil. A mass of this size is less than one millimeter in diameter and is undetectable by palpation or mammography.<sup>73</sup> In ten years, the mass is finally detectable, having grown to a size comparable

to the eraser of a common pencil. At that stage it consists of about one billion cells and is one centimeter in diameter.<sup>73</sup>

**It sounds like I don't have to rush back to the operating room, since I probably have had this cancer for ten years by now.**

This information may sound very discouraging, but you must know these facts in order to avoid unnecessary treatments that can disfigure and otherwise harm you.

When the full course of the disease is followed from the start of the cancer to the death of the woman, 75 percent of the time during which the woman has been a victim of cancer neither she nor her physician has known that it exists.<sup>73,74</sup> This fact, combined with the rarity of cure, leads to the conclusion that by the time the diagnosis is made, cells have already spread from the original tumor to other parts of the body.<sup>38,53-71</sup> This is true in most, if not all, cases of breast cancer.

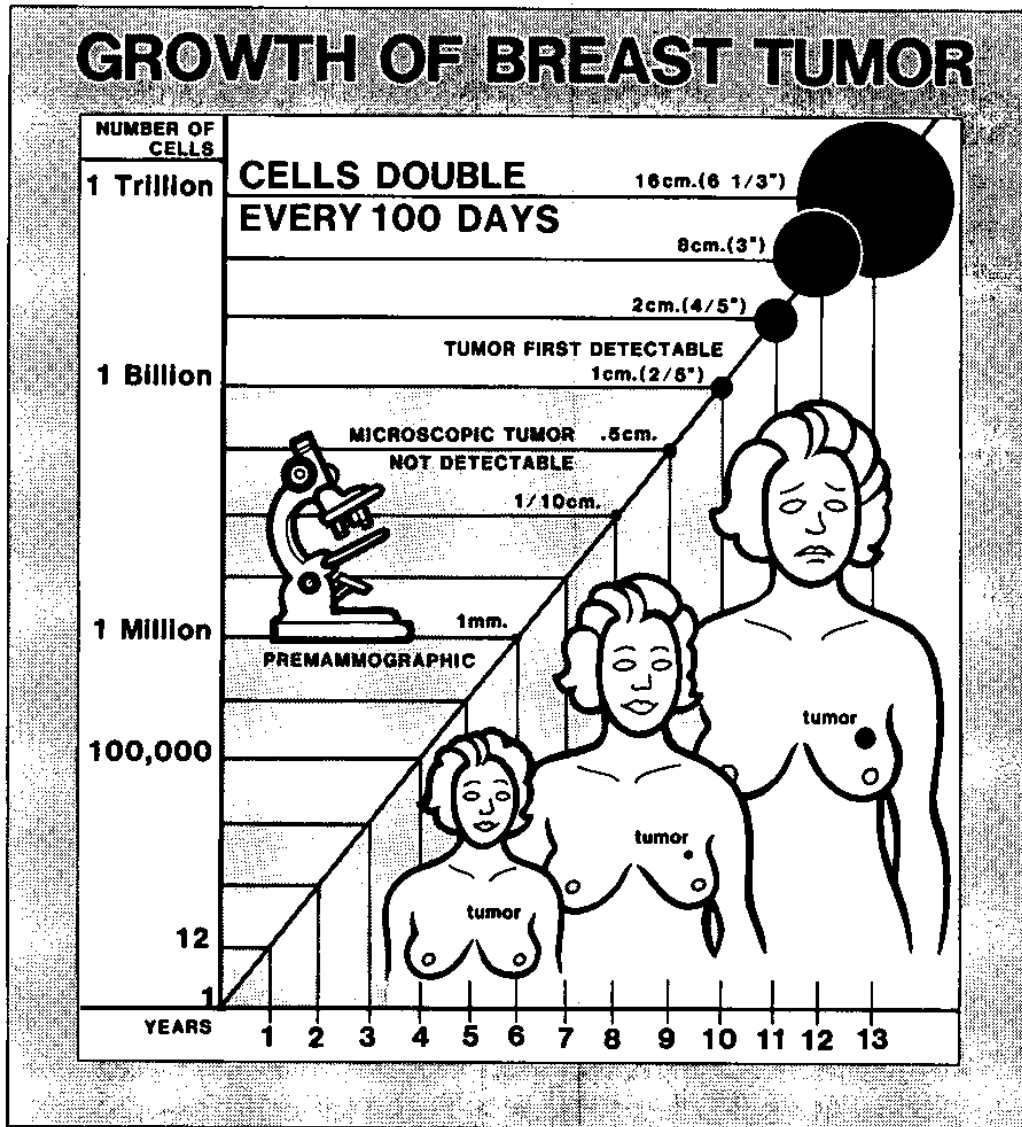
Studies show that before the tumor is discovered in the breast, when the cancer is still virtually microscopic in size, cancer cells are entering the bloodstream. At the time of a diagnostic lumpectomy, these cancer cells can be found in the circulating blood of women with breast cancer.<sup>75</sup> These cancer cells, distributed by the blood, eventually settle in healthy tissues, and there many develop new tumors.<sup>76</sup> The cancer cells from the original tumor in the breast that lodge and grow in other parts of the body are called *metastases*. These metastatic cancers also have the same average doubling time of 100 days.<sup>73</sup> They eventually grow in the victim's critical organs, replacing tissue in the brain, liver, and lung. Rarely, if ever, does a woman die as a direct result of the tumor growing in her breast.

Doctors have understood the natural history of breast cancer for more than thirty years.<sup>74</sup> Yet, little of this understanding is reflected in the surgical treatments that have been prescribed for women over the past three decades.

**I never realized before that lumpectomy and mastectomy are equally effective because both treatments are usually too late to stop the spread of the cancer. After the lump was removed from my breast I had a chest X-ray, bone scan, and blood tests. My doctor told me the cancer hadn't spread. Can that be true?**

These tests are not sensitive enough to detect small tumors.<sup>77</sup> A lump developing from a metastasis must be almost a centimeter in diameter for a bone scan or an X-ray to detect it. Such areas of metastatic cancer would have been growing for an average of ten years in order to reach that size.<sup>73</sup> When these metastatic cancers finally reach detectable sizes, they seem to have spread like wildfire, overnight. Actually, many small tumors have

This diagram will illustrate the growth of breast cancer:



Three-fourths of the time a woman has been a victim of breast cancer has been without her knowledge.<sup>73,74</sup> Only during the final stages of this disease is the tumor detectable by any method. Unfortunately, by this time spread to other parts of the body has occurred in almost every case and the disease is incurable.<sup>71</sup> Because most of the years of cancer growth are hidden at microscopic levels, efforts toward early detection are unlikely to ever yield much success in saving lives. Our precious health-care dollars would be better spent on efforts toward prevention, such as teaching a low-fat (starch-based) diet.

been busily doubling in size for years until they become detectable to the touch or to X-rays and bone scans. When metastatic lesions appear two years or so after a small breast tumor was found, the spread through the bloodstream probably occurred about two years after the original cell in the breast became cancerous, or eight years before diagnosis!

The most effective and least expensive tests to determine if metastases have occurred are a physical examination, chest X-ray and simple blood tests.<sup>78</sup> These should be routinely performed just after diagnosis of cancer, because this may influence the choice of therapy, especially if the cancer has spread extensively. Bone and liver scans, X-rays of the full skeleton, and examinations of the bone marrow for cancer should be reserved for specific indications.<sup>77,78</sup> The value of any of these tests performed at routine intervals for follow up is questionable, since there is little effective therapy available for women when the tumor has been found to have spread. Therefore, in most cases, there is no reason for breast cancer victims to undergo routine testing to detect spread of cancer.<sup>79</sup> When symptoms appear, then appropriate examinations should be performed. There is value in contacting a physician regularly in order to detect any recurrence of the tumor in the affected breast or chest area and in the opposite breast. Frequent breast self-examination is valuable for detecting recurrences.

**My previous doctor told me I must have my whole breast removed because other places in the same breast may also be cancerous.**

He is right about the likelihood that other parts of your breast will be involved. The dietary factors, as well as other factors, that are involved in the cause of breast cancer affect all the breast tissues. Breast cancer, therefore, develops not just as a disease of the one detected site but as a disease that affects all breast tissues. The lump you found, the growth from one original cancer cell, is just more advanced than the other sites in your breast that are developing from a later starting time but at about the same rate of growth. After a mastectomy, when breast tissues outside the site of the actual tumor that was removed are examined microscopically, in most instances, these tissues too show evidence of cancer.<sup>80</sup> This is why surgeons often recommend a mastectomy, complete removal of the breast. Fortunately, these other and newer cancers grow to a size where they become detectable in only about 10 percent of women who, for one reason or another, do not have mastectomies or radiation to the breast.

Remember that breast cancer is a disease of all breast tissues. When the opposite breast is examined in women diagnosed as having breast cancer, in almost 100 percent of the cases various stages from precancerous changes to actual cancerous lumps are found there too.<sup>50,81</sup> Therefore, the same