



Health Promotion for Breast Cancer Survivors: An Interview with Dr. Tish Knobf

Dr. Tish Knobf '82 was recently awarded \$2.2 million by the National Cancer Institute to devise new ways of making a woman's post-cancer years healthy and fulfilling. Below are excerpts from an interview with Dr. Knobf, conducted by Colleen Shaddox of Yale University's Office of Public Affairs.

Apart from the risk of recurrence, what kinds of health challenges do breast cancer survivors face?

DR. TISH KNOBF: Initially following treatment, many women experience persistent physical symptoms such as fatigue, menopausal symptoms, weight gain, and muscle aches. Psychological distress, including worry about recurrence and uncertainty, is common. There is uncertainty about recovery, not knowing what to expect, uncertainty about symptoms, and uncertainty about returning to life “the way it was before.” The strong support provided by family and friends tends to wane a bit as everyone wants the woman to “get back to normal” now that treatment has ended. This is often emotionally challenging for the cancer survivor. Late effects of cancer treatment are becoming an area of important concern. In 2007, the Institute of Medicine published a report on cancer survivors and made recommendations to assess and manage potential persistent and long-term treatment effects. One example of a treatment effect in women with breast cancer that I am interested in is bone loss, which may increase a woman's risk of developing osteopenia or osteoporosis. Bone loss is associated with premature menopause caused by chemotherapy in younger women and hormonal therapy with aromatase inhibitors in postmenopausal breast cancer survivors.

Is follow-up care standard for breast cancer survivors?

DR. KNOBF: There are national guidelines for follow-up care, primarily related to surveillance, specifically to monitor risk of recurrence and detection of any new primary cancers, in the contralateral breast or elsewhere. What is lacking in our health care system is a structured program of information and support to help women transition from treatment, promote recovery, and adopt healthy lifestyle behaviors. Several survivorship clinics have been created, primarily at large comprehensive cancer centers, such as the Yale Cancer Center, but these

serve only a small percent of adult cancer survivors. In a recent study that colleagues and I conducted, 45% of breast cancer survivors reported that they did not receive the information they needed at the end of treatment and managing persistent physical symptoms over the first year after treatment was a priority concern. Women consistently tell us they also need support and strategies to help them recover and reintegrate back into life after treatment.

You did a pilot exercise study with breast cancer survivors. Tell us a bit about what you learned there.

DR. KNOBF: The pilot study was a supervised program at a fitness center where women exercise three times per week for 45 minutes each time over four to six months. The purpose of the study was to evaluate if the exercise program was feasible—would women attend three times per week—and to evaluate if exercise could prevent weight gain, which commonly occurs in breast cancer survivors, and could it prevent bone loss associated with treatment. We learned that such an exercise program is feasible. Women are interested and motivated to help themselves become and stay healthy. We matched fitness centers to where the women lived or worked by their stated preference, which likely contributed to our high adherence rate, an average of 88% over the course of the study. We looked at weight, markers of bone turnover, and heart rate. Women also rated their quality of life and symptoms over time. In our sample of 26 women, we found no change in weight, no change in bone turnover, and significant psychological benefits. Women reported better emotional well-being, were less depressed, and felt more resilient and empowered.

The high attendance rate, three times per week for four to six months, is pretty amazing. Why do you think that was the case?

DR. KNOBF: I think that women had unmet needs for social support. The program sessions were offered in two hour blocks five days per week and women could choose three of those days. Thus, women exercised together. They got to know one another and felt a common bond. In addition, the exercise program was supervised by trained exercise personnel. Women feel secure doing exercise when there is someone there with expertise, which also fosters a

sense of “I can do this” and motivation to return knowing that someone will be there monitoring their progress.

The National Institutes of Health has recently awarded you funding for a much larger study based on your pilot work. Can you tell us what these women are going to be doing?

DR. KNOBF: We will test two types of exercise and look at the persistent and potential long-term effects of treatment on health outcomes. Women will be randomly assigned into two groups: an aerobic-resistive program at a fitness center or an at-home health promotion exercise program. The aerobic-resistive exercise group will have three sessions per week at the fitness center and will do aerobic activity on two other days. The women in the at-home exercise group will receive instruction on the national recommendations for adults of 30 minutes of physical activity on most days of the week. Both groups will receive information on healthy eating and receive calcium and vitamin D supplementation.

The target outcomes for this study are factors that are associated with increased health risks, specifically bone loss, changes in weight and body composition (e.g., increased fat mass, loss of lean muscle mass) and metabolic factors (lipids, blood pressure, cholesterol, and insulin). We will also evaluate cardiovascular fitness, muscle strength, symptoms, and quality of life.

It is very important to acknowledge my co-investigators and consultants. Each person brings unique expertise, knowledge, and skill to the study and its success. Dr. Karl Insogna is Professor of Medicine at Yale University and his expertise is in bone physiology, bone densitometry, and osteoporosis. Dr. Barbara Smith has an established program in exercise intervention research with expertise in body composition outcomes. Dr. Lyndsay Harris is Director of the Breast Program at the Yale Cancer Center and is particularly interested in metabolic risk factors in breast cancer survivors. Dr. Kristopher Fennie, Research Scientist at YSN, provides statistical and analytic expertise. Consultants include Dr. Deborah Chyun '82, Associate Professor at NYU (cardiovascular and diabetes); Dr. Jane Kerstetter, Visiting Professor, Yale School of Medicine, Section of Endocrinology (nutrition and bone physiology); and Dr. Robert Axtell, Professor and Director of Exercise Science at Southern CT State University.

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Your study is 12 months long. Can you comment on why you made the exercise program so long?

DR. KNOBF: One of the reasons why we chose 12 months is because you need a longer duration of exercise to assess the potential effect on bone mass. We will measure outcomes at six and 12 months so we will be able to determine the effect of six months of exercise on other study outcomes such as physical functioning, strength, quality of life, and symptoms.

To some extent, this is a new issue for the health care system to deal with the increasing number of long-term cancer survivors. What do you think that means going down the road?

DR. KNOBF: There are an estimated 11 million cancer survivors. Women with breast cancer make up the largest group—about 22% of the entire cancer survivor population. Patients are living much longer. We not only want to decrease their risk of cancer recurrence, but also to promote health to decrease risks of other chronic illnesses, some of which may be directly related to effects of cancer treatment. There are published data suggesting that routine physical activity can reduce recurrence risk and improve survival for survivors of breast and colo-rectal cancers.

Is it difficult to get women to shift focus from being totally concerned about the cancer to thinking, oh, I have to be worried about other chronic diseases that may not have entered my mind before.

DR. KNOBF: The end of treatment has been described as a “teachable moment” for health promotion. Oncology providers are encouraged to provide information to patients on the benefits



Tish Knobf reviews data with Dr. Karl Insigna, co-investigator for this research grant, Director of the Yale Bone Center, and Professor of Internal Medicine at Yale School of Medicine; and Christine Sampson, Research Associate with Internal Medicine.

of physical activity and healthy eating as they transition off treatment to survivorship. Women with breast cancer, and probably all cancer survivors, have a strong sense of vulnerability and uncertainty following therapy. Adopting healthy lifestyle behaviors is something that they can do for themselves. It helps reduce the uncertainty and also makes them feel physically better and also emotionally stronger. It is important that they are educated about the link between physical activity and risk reduction of many chronic illnesses in adults.

In general, what kind of reaction do you get from survivors when you approach them about this kind of survivorship work you’re doing?

DR. KNOBF: Overwhelmingly positive! I had women wanting to join the study well before I was prepared to start recruitment. Our health care system is predominantly focused on the treatment of disease. Cancer survivors have significant information and support needs, especially at transition times like treatment decision-making after diagnosis and when treatment ends. Supportive care research is very attractive to cancer patients and survivors. In some cases, this research actually fills a void in the care we provide. It also offers an opportunity to enhance care by determining the best type of intervention and “dose” (e.g., how much, how long, how much information is desired), to influence outcomes and the survivor’s quality of life.

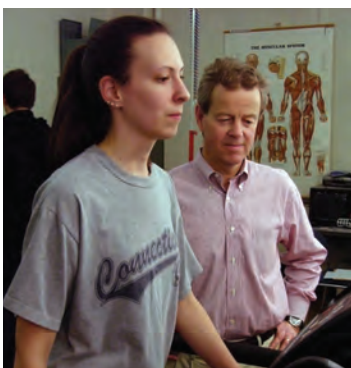
You’ve talked a bit about the sort of dramatic fall off in care that a woman experiences when she finishes treatment, which you think would be a wonderful happy time and a time of relief, but not necessarily so.

DR. KNOBF: The end of treatment is filled with mixed emotions. Many women report that they feel abandoned and isolated as they begin their recovery journey. Women are generally well supported during cancer treatment by friends and family, and oncology health care providers. Women with breast cancer who receive adjuvant chemotherapy experience a four to six month, or longer of a steady relationship with oncology nurses and their oncologist. Women report that while they’re on treatment they feel like they’re doing something to keep the cancer away. Once treatment is over, there is a surge of uncertainty and vulnerability, and fears of recurrence may heighten. You finish your treatment, and your oncologist typically says, “I’ll see you in three months.” Once women are home, waiting three months for a follow-up visit often seems very long and unsettling. It is during this time that I think we can begin to implement interdisciplinary supportive care programs to help cancer survivors transition off treatment to help them feel more secure in managing their symptoms and emotional health as well as provide strategies to reintegrate into life or begin to learn how to achieve a “new normal,” as many have described.

Last year, there was a report from the Institute of Medicine titled *Cancer Survivor: Lost in Transition*. How does your work fit with this report?

DR. KNOBF: This study is consistent with the Institute of Medicine’s recommendations for health promotion and risk reduction for survivors after treatment. The target population is female cancer survivors within the first few years of menopause and those with breast cancer taking aromatase inhibitors as adjuvant therapy. Both of these groups of women are at increased risk for bone loss, and may have other chronic illness risks as a direct result of cancer treatment or the effects of cancer treatment on physical and psychological health.

Tish Knobf ’82, PhD, RN, FAAN, AOCN, is the American Cancer Society Professor at Yale University School of Nursing and a member of Yale Cancer Center. She is the Principal Investigator for this exercise intervention trial to improve physiologic health outcomes in an at-risk early post-menopausal cancer survivor population. The complete audio interview may be heard at nursing.yale.edu/News/Media.



Robert Axtell, PhD, Professor of Exercise Science at Southern Connecticut State University, monitors an exercise program.