

Healing After Breast Cancer Treatment

Table 3: Lifestyle Modifications that Lower the Risk of Recurrence of Breast Cancer

Fitness/Shape		
Exercise	There was a 50% greater chance of being a survivor in those who got the equivalent of 30 minutes of exercise 6 days a week or 3 hours weekly. ¹	WHEL trial: 1490 women diagnosed and treated for early-stage breast cancer between 1991 and 2000.
	Not only does physical activity increase survivorship, but the amount matters. The women who exercised 3–5 hours a week at an average pace (2–2.9 mph) were 50% more likely to be long-term survivors. The women who only exercised 1–3 hours a week were 30% less likely to survive. ²	Prospective observational study based on responses from 2987 participants in the Nurses' Health Study who were diagnosed with stage I, II, or III breast cancer between 1984 and 1998.
	Women who increased their activity level after diagnosis and treatment had a 45% higher chance of survival and those who reduced their posttreatment activity had a four-fold lower chance of survival. Modest increase in posttreatment fitness improves prognosis. ³	Prospective observational study of 933 women; (Health, Eating, Activity, and Lifestyle Study) diagnosed with local or regional breast cancer (1995–1998); observed until death or 2004.
Body mass index	Those who had a body mass index of less than 25 or a waist-to-hip ratio (WHR) of less than or equal to 0.85 were 38% more likely to be a survivor than those whose BMI was greater than or equal to 30 or a WHR of <0.80. (Low vegetable and fruit consumption and current or past smoking were also associated with worse breast cancer survival.) ⁴	1453 women with invasive breast cancer, diagnosed 1991–1994 were interviewed during follow-up; Italian multicenter case-control study.
Body fat	Women with higher percentage of body fat had a 30% lower risk of surviving breast cancer. The most consistent finding was that adiposity was associated with a 30% increased risk of mortality. ⁵	2010 review of epidemiologic studies conducted at Moores UCSD Cancer Center.
Beverages/Diet		
Alcohol	Drinking 3 to 4+ drinks per week is associated with a 1.3-fold increased risk of breast cancer recurrence. ⁶	Kaiser's Life After Cancer Epidemiology (LACE) prospective study of 1897 early stage breast cancer survivors diagnosed between 1997 and 2000.
Green tea	One meta-analysis reported that more than 3 cups of green tea consumed daily reduces the risk of recurrence by 27% while 5+ cups was required in the 2005 analysis. ^{7,8}	2010 meta-analysis of other studies, 5617 cases and 2005 systematic review and meta-analysis.
Vegetables/fruits & fitness	There was a 50% greater likelihood of being a survivor among those who consumed five or more servings of vegetables and fruits daily and who accumulated 540+ metabolic equivalent tasks-min/wk (equivalent to walking 30 minutes 6 d/wk); only the combination was associated with a significant survival advantage. ⁹	This prospective study was performed of 1490 women diagnosed and treated for early-stage breast cancer between 1991 and 2000.
	Note: the Women's Healthy Eating and Living trial did not find high vegetable and fruit consumption to result in more benefit compared with controls in the general first analysis of the study. However, a subgroup of women taking tamoxifen who ate the most servings of cruciferous vegetables daily had a 52% lower recurrence rate than those who ate the fewest servings. ¹⁰	
Soy isoflavones	Asian women who ate the most soy foods had the least recurrence and the greatest survival. ¹¹ Another study found that among postmenopausal American women who take tamoxifen, those who ate the equivalent of isoflavones in an Asian diet had a 60% reduction in breast cancer recurrence. ¹² Note: published warnings regarding the differences in the epigenetics of American breast cancer survivors (vs. Asian) caution the consumption of soy foods equaling the equivalent of the Asian diet until more data are available. ¹³	5042 Chinese breast cancer survivors ages 20–75 diagnosed between 2002–2006 vs. California cohort of 1954 survivors from 1997–2000 in a prospective assessment of isoflavone consumption.

Dietary intervention trials in review and support of limiting animal fat for breast cancer survivorship

The Nurses' Health Study reported no evidence suggesting that lower intake of total fat or a specific type of fat was associated with death from breast cancer.¹⁴

Higher levels of dietary intake of butter, margarine, lard, and beef were found to increase the risk of recurrence. There was also an increased risk associated with consumption of red meat, liver, and bacon, corresponding to a doubling of the risk for each time per day that foods in this category were consumed ($p = 0.09$).¹⁵

During the Women's Intervention Nutrition Study (WINS), women counseled to reduce fat intake to 15% of calories had a 24% lower risk of recurrence compared with the control group counseled to eat between 20–35% calories from fat ($p < 0.05$).¹⁶

Basic recommendations for therapeutic lifestyle modifications to reduce risk of recurrence of breast cancer:

- Exercise 3–5 hours a week, at least more than you did before you were diagnosed.
- Optimize BMI, waist/hip ratio, and body fat to meet study guidelines listed above.
- Drink fewer than three alcoholic beverages weekly.
- Drink 5–10 cups of green tea a day (or the equivalent in capsules).
- Eat a diet high in fiber with a therapeutic dose (5–10 half-cup portions) of a variety of local, organic vegetables (particularly cruciferous) and fruits (particularly berries) daily, and limit or eliminate animal protein and, if eaten, use free-ranging, hormone-free sources.
- Eat organic, whole soy foods if you are from Asia, were raised on an Asian equivalent of soy, and/or are on tamoxifen.

1. Pierce JP, Stefanick ML, Flatt SW, et al. Greater survival after breast cancer in physically active women with high vegetable-fruit intake regardless of obesity. *J Clin Oncol*. 2007;25(17):2345–2351.
2. Holmes M, Chen W, Feskanich D, et al. Physical activity and survival after breast cancer diagnosis. *JAMA*. 2005;293:2479–2486.
3. Irwin M, Smith A, McTiernan A, et al. Influence of pre-and postdiagnosis physical activity on mortality in breast cancer survivors: The health, eating activity, and lifestyle study. *J of Clin Oncol*. 2008;26(24):3958–3964.
4. Dal Maso L, Zucchetto A, Talamini R, et al. Effect of obesity and other lifestyle factors on mortality in women with breast cancer. *Int J Cancer*. 2008;123(9):2188–2194.
5. Patterson RE, Cadmus LA, Emond JA, et al. Physical activity, diet, adiposity and female breast cancer prognosis: a review of the epidemiologic literature. *Maturitas*. 2010;66(1):5–15.
6. Kwan ML, Kushi LH, Weltzien E, et al. Alcohol consumption and breast cancer recurrence and survival among women with early-stage breast cancer: the life after cancer epidemiology study. *J Clin Oncol*. 2010;28(29):4410–4416.
7. Ogunleye AA, Xue F, Michels KB. Green tea consumption and breast cancer risk or recurrence: a meta-analysis. *Breast Cancer Res Treat*. 2010;119(2):477–484.
8. Seely D, Mills EJ, Wu P, et al. The effects of green tea consumption on incidence of breast cancer and recurrence of breast cancer: a systematic review and meta-analysis. *Integr Cancer Ther*. 2005;4(2):144–155.
9. Pierce JP, Stefanick ML, Flatt SW, et al. Greater survival after breast cancer in physically active women with high vegetable-fruit intake regardless of obesity. *J Clin Oncol*. 2007;25(17):2345–2351.
10. Thomson CA, Rock CL, Thompson PA, et al. Vegetable intake is associated with reduced breast cancer recurrence in tamoxifen users: a secondary analysis from the Women's Healthy Eating and Living Study. *Breast Cancer Res Treat*. 2011 125(2):519–527.
11. Ou Shu X, Zheng Y, Cai H, et al. Soy food intake and breast cancer survival. *JAMA*. 2009;302(22):2437–2433.
12. Guha N, Kwan ML, Quesenberry CP Jr, et al. Soy isoflavones and risk of cancer recurrence in a cohort of breast cancer survivors: the Life After Cancer Epidemiology study. *Breast Canc Res Treat*. 2009;118(2):395–405.
13. Hilakivi-Clarke L, Andrade JE, Helferich W. Is soy consumption good or bad for the breast? *J Nutr*. 2010;140(12):2326S–2334S.
14. Holmes MD, Hunter DJ, Colditz GA, et al. Association of dietary intake of fat and fatty acids with risk of breast cancer. *JAMA*. 1999;281:914–920.
15. Hebert JR, Hurley TG, Ma Y (1998) The effect of dietary exposures on recurrence and mortality in early stage breast cancer. *Breast Cancer Res Treat*. 51:17–28.
16. Chlebowski, R., G. Blackburn, et al. Dietary fat reduction and breast cancer outcome: interim efficacy results from the Women's Intervention Diet Study. *J Natl Cancer Inst*. 2006;98:1767–1776.