

Lifestyle Intervention for Breast Cancer Women

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Breast cancer patients have various physical, psychological health risks, among which are the effects on general health. Lifestyle intervention involving nutrition education, physical activity, and stress management, and has been shown to be effective in improving the health of breast cancer patients. Therefore, it is necessary to develop and apply a lifestyle intervention program to promote health in breast cancer patients.

Key Words: Lifestyle, Breast cancer, Health

INTRODUCTION

The incidence rate of breast cancer has seen an upsurge in recent years. Patients with breast cancer experience negative changes in their quality of life, and some may experience physical side-effects and psychological difficulties. Exercise and nutrition-related lifestyle changes improve the health of these breast cancer patients not only physically but also psychologically. Therefore, related lifestyle intervention programs should be reviewed closely, developed, and applied.

According to the statistics from the World Health Organization, breast cancer accounted for 25.2% of new diagnoses of cancer in women worldwide in 2012 [1]. Breast cancer is the second most common cancer in Korea after thyroid cancer and affects 19,142 per 100,000 people as of 2015, constituting 18.9% of the total number of cancer

diagnosis. Additionally, breast cancer incidence saw a 4.0% increase between 2007 and 2015 compared to other types of cancers, which have shown decreases in the same period [2]. Although the mortality rate due to breast cancer has been decreasing over the past few decades, the incidence rate has been sharply increasing [3].

Breast cancer is caused by a combination of factors, such as female hormones or estrogen exposure and lifestyle factors. These lifestyle factors may commonly include obesity, alcohol consumption, family history of breast cancer, and hormonal factors. For cancer patients, a positive lifestyle is very important for improving health conditions, preventing the progression of cancer, and treating cancer [4-7].

EFFECT OF LIFESTYLE INTERVENTION FOR BREAST CANCER PATIENTS

The NCCN guidelines recommend maintaining a healthy weight, participating in regular exercise, eating a healthy diet, abstaining from alcohol, protecting oneself from UV rays, and regularly scheduling check-ups to ensure healthy life for cancer survivors [8].

Lifestyle medicine is defined as an approach promoting staying healthy by dealing with lifestyle-related health issues. It provides the principles of environmental, behav-

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ioral, medical, and motivational changes and applies lifestyle interventions, such as physical activity, nutrition, stress management, non-smoking, and other non-pharmacological factors [9]. The American Cancer Society recommends a habit of physical activity, healthy diet, maintenance of healthy weight, and non-smoking for cancer patients to maintain a healthy life [10]. Given the recent surge in breast cancer cases in women, identifying the lifestyle factors related to the development of breast cancer is of the utmost importance to reduce the ever-increasing incidence rate of breast cancer [11]. The lack of physical activity is shown to be highly correlated to the incidence of cancer [12]. Especially, obesity is highly related to the incidence rates of 11 types of cancer, including esophageal cancer, gastric cancer, colon cancer, rectal cancer, liver cancer, pancreatic cancer, breast cancer, uterine cancer, kidney cancer, thyroid cancer, and multiple myeloma [13]. It was reported that inflammation, hormones, insulin resistance, and hyperinsulinemia produced by adipocytes cause cancer [14]. In women in particular, the excessive production of estrogen in adipocytes increased the risk of breast cancer [15], and body mass index (BMI) was positively correlated with the risks of breast, uterine, cervical, and ovarian cancers. Exercise is reported to improve physical health and ultimately improve the quality of life of breast cancer survivors [16,17]. Breast cancer survivors' participation in exercise is reported to have positive effects, including the reduction of fatigue, depression, anxiety, and stress [18,19], as well as positive social and psychological effects by improving self-efficacy [20].

In breast cancer patients, nutrition is important in the process of overcoming the disease. This is because dietary and nutritional treatments are reported to affect the occurrence, treatment, and prognosis of breast cancer [21,23]. In particular, it is suggested that the consumption of a high-fat diet increases mortality while reduction of saturated fat and trans-fats in the diet can improve the survival rate in breast cancer treatment and prognosis [22,24]. A meta-analysis of the relationship between BMI and survival of breast cancer patients reported a significant increase in the risk of deaths related to breast cancer for overweight or obese patients compared to those with normal weight [25]. For breast cancer survivors, low level of physical activity and overweight

or obese lifestyle patterns can be risk factors for recurrence of breast cancer as well as occurrence of other chronic illnesses [26]. Therefore, it is suggested that improvements in lifestyle habits are necessary, including increasing physical activity, losing weight, consuming more vegetables and fruits, and a low-fat diet [27]. The overall effect size of nutritional interventions on breast cancer patients was large at -0.75 – 1.10 (Hedges'g). In particular, evidence shows that BMI, which has shown significant statistical differences, can be effectively reduced through nutritional interventions and that nutritional interventions in breast cancer patients reduce weight and BMI and improve dietary habits [28]. A logistic regression analysis showed that food, physical activity, and stress relief are variables that have significant effects on the occurrence of breast cancer. It has been shown that the risk of breast cancer increases 2.16-fold in those who usually eat meat compared to those who usually do not, 5.34-fold in those who engage in light exercise compared to those who engage in moderate or more vigorous exercise, and 3.19-fold in those who cannot relieve stress compared to those who cancer [10].

CONCLUSION

The improvement of lifestyle has positive effects (weight loss, physical health improvement, and improvement of quality of life) for breast cancer patients and also reduces the risk of cancer development. Thus, a proactive lifestyle intervention should be developed and actively applied to breast cancer patients.

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REFERENCES

1. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin D, Forman D, Bray F. GLOBOCAN 2012: Estimated cancer incidence, mortality and prevalence worldwide in 2012 v1.0: IARC CancerBase No. 11. International Agency for Research

- on Cancer; Lyon, France. 2013.
2. National Cancer Information Center [Internet]. [cited 2018 Jun 12]. Available from: <https://www.cancer.gov/lay1/S1T639C641/contents.do>.
 3. Bessaoud F, Daures JP, Gerber M. Dietary factors and breast cancer risk: A case control study among a population in Southern France. *Nutr Cancer* 2008;60:177-87.
 4. Patterson RE, Neuhouser ML, Hedderson MM, Schwartz SM, Standish LJ, Bowen DJ. Changes in diet, physical activity, and supplement use among adults diagnosed with cancer. *J Am Diet Assoc* 2003;103:323-8.
 5. Salminen E, Bishop M, Poussa T, Drummond R, Salminen S. Dietary attitudes and changes as well as use of supplements and complementary therapies by Australian and Finnish women following the diagnosis of breast cancer. *Eur J Clin Nutr* 2004;58:137-44.
 6. Maskarinec G, Murphy S, Shumay D, Kakai H. Dietary changes among cancer survivors. *Eur J Cancer Care* 2001;10:12-20.
 7. Salminen E, Lagström H, Heikkilä S, Salminen S. Does breast cancer change patients' dietary habits? *Eur J Clin Nutr* 2000;54:844-8.
 8. Byeon JY, Kang MJ, Park JH, Min JH, Jeon JY. Exercise program based on preferences of breast cancer survivors. *Korean J Phys Educ* 2018;57:611-24.
 9. Egger G, Binns A, Rossner S. Lifestyle medicine: Managing diseases of lifestyle in the 21st century. (2nd ed). North Ryde, NSW; McGraw-Hill. 2011.
 10. Doyle C, Kushi LH, Byers T, Courneya KS, Demark-Wahnefried W, Grant B, McTiernan A, Rock CL, Thompson C, Gansler T. Nutrition and physical activity during and after cancer treatment: an American Cancer Society guide for informed choices. *CA Cancer J Clin* 2006;56:323-53.
 11. Yoo YG, Choi SK, Hwang SJ, Kim HS. Risk factors of breast cancer according to life style. *J Korean Content Assoc* 2013;13:262-72.
 12. Friedenreich CM, Neilson HK, Lynch BM. State of the epidemiological evidence on physical activity and cancer prevention. *Eur J cancer* 2010;46:2593-604.
 13. Lauby-Secretan B, Scoccianti C, Loomis D, Grosse Y, Bianchini F, Straif K. Body fatness and cancer—viewpoint of the IARC Working Group. *N Engl J Med* 2016;375:794-8.
 14. Calle EE, Kaaks R. Overweight, obesity and cancer: Epidemiological evidence and proposed mechanisms. *Nat Rev Cancer* 2004;4:579-91.
 15. Clemons M, Goss P. Estrogen and the risk of breast cancer. *N Engl J Med* 2001;344:276-85.
 16. Pinto BM, Dunsiger S, Waldemore M. Physical activity and psychosocial benefits among breast cancer patients. *Psychooncology* 2013;22:2193-9.
 17. Rogers LQ, Courneya KS, Anton PM, Hopkins-Price P, Verhulst S, Vicari SK, Robbs RS, Mocharnuk R, McAuley E. Effects of the BEAT Cancer physical activity behavior change intervention on physical activity, aerobic fitness, and quality of life in breast cancer survivors: a multicenter randomized controlled trial. *Breast Cancer Res Treat* 2015;149:109-19.
 18. Duijts SF, Faber MM, Oldenburg HS, van Beurden M, Aaronson NK. Effectiveness of behavioral techniques and physical exercise on psychosocial functioning and health-related quality of life in breast cancer patients and survivors—a meta-analysis. *Psychooncology* 2011;20:115-26.
 19. Yang TY, Chen ML, Li CC. Effects of an aerobic exercise programme on fatigue for patients with breast cancer undergoing radiotherapy. *J Clin Nurs* 2015;24:202-11.
 20. Lee MK, Yun YH, Park HA, Lee ES, Jung KH, Noh DY. A Web-based self-management exercise and diet intervention for breast cancer survivors: pilot randomized controlled trial. *Int J Nurs Stud* 2014;51:1557-67.
 21. Christifano DN, Fazzino TL, Sullivan DK, Befort CA. Diet quality of breast cancer survivors after a six-month weight management intervention: Improvements and association with weight loss. *Nutr Cancer* 2016;68:1301-8.
 22. Kroenke CH, Kwan ML, Sweeney C, Castillo A, Caan BJ. High-and low-fat dairy intake, recurrence, and mortality after breast cancer diagnosis. *J Natl Cancer Inst* 2013;105:616-23.
 23. Rock CL, Demark-Wahnefried W. Nutrition and survival after the diagnosis of breast cancer: A review of the evidence. *J Clin Oncol* 2002;20:3302-16.
 24. Beasley JM, Newcomb PA, Trentham-Dietz A, Hampton JM, Bersch AJ, Passarelli MN, Holick CN, Titus-Ernstoff L, Egan KM, Holmes MD. Post-diagnosis dietary factors and survival after invasive breast cancer. *Breast Cancer Res Treat* 2011;128:229-36.
 25. Chan D, Vieira A, Aune D, Bandera E, Greenwood D, McTiernan A, Navarro Rosenblatt D, Thune I, Vieira R, Norat T. Body mass index and survival in women with breast cancer—systematic literature review and meta-analysis of 82 follow-up studies. *Ann Oncol* 2014;25:1901-14.
 26. Campbell KL, Van Patten CL, Neil SE, Kirkham AA, Gotay CC, Gelmon KA, McKenzie DC. Feasibility of a lifestyle intervention on body weight and serum biomarkers in breast cancer survivors with overweight and obesity. *J Acad Nutr Diet* 2012;112:559-67.
 27. Kellen E, Vansant G, Christiaens MR, Neven P, Van Limbergen E. Lifestyle changes and breast cancer prognosis: a review. *Breast Cancer Res Treat* 2009;114:13-22.
 28. Chung BY, Oh EH. The effect of diet intervention in breast cancer: A meta-analysis. *Asian Oncol Nurs* 2017;17:1-11.