



InspireHealth
INTEGRATED CANCER CARE

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Top 10 Things you can do to Support your Health if you have been Diagnosed with Breast Cancer

1) Eat the right kinds of fats. Low fat diets have been shown to reduce the risk of breast cancer¹ and breast cancer recurrence². However it's also important to choose the right types of fat to include in your diet. Increasing Omega 3 fats (e.g. wild salmon, fish oil supplements) and decreasing Omega 6 fats (e.g. vegetable oils, margarines, and commercial salad dressings) in the diet may help prevent breast cancer, as well as other chronic diseases³.

2) Eat lots of fruits & vegetables. They have many healthy components including fiber, vitamins, minerals, and phytochemicals, which provide antioxidants. Combined with an overall healthy diet, eating more fruits and vegetables can improve survival in breast cancer patients⁴.

3) Avoid Eating Highly Processed foods. They usually have lower nutritional value than fresh food, and may contain unhealthy food additives and preservatives, such as nitrites in packaged meats. They are often high in sodium and calories, contributing to weight gain and obesity, which is a likely risk factor for breast cancer⁵.

4) Get lots of vitamin D. Research shows that women with lower blood Vitamin D levels are at greater risk of breast cancer^{6,7}. Vitamin D levels can be measured with a simple blood test; optimal levels are at least 80 nmol/L^{8,9,10}. Vitamin D experts now recommend daily supplements of 1000-2000 IU per day^{9,10,11}. Moderate sun exposure also provides Vitamin D during summer months¹²; approximately 20 minutes per day in the sun without sunscreen is recommended.

5) Exercise. Women with breast cancer who are physically active are more likely to survive¹³; obese women also have increased survival with physical activity¹⁴. These studies recommend at least 3 hours of moderate exercise per week. Exercise can also reduce fatigue^{15,16} and improve quality of life¹⁷.

6) Have a sense of humour. A large study in Norway showed that healthy adults and adults with cancer, who had a greater sense of humour were less likely to die from any cause¹⁸. Humour is useful as a relaxation and coping mechanism, it can lessen anxiety, and has a positive effect on the immune system¹⁹.

7) Learn to relax. Practicing relaxation techniques can reduce nausea and vomiting in women undergoing chemotherapy^{20,21}; they can also help control hot flashes²². Relaxing activities such as massage²³, yoga^{24,25}, and meditation^{26,27,28} can reduce depression, anxiety, and stress, help control insomnia, pain, and fatigue, and improve quality of life and well-being.

8) Don't smoke. Smoking is a risk factor for breast cancer^{29,30}. Secondhand smoke is also harmful³¹. Quitting smoking and avoiding secondhand smoke is part of adopting a healthy lifestyle.

9) Avoid toxins. Pick up a copy of CancerSmart 3.0³² to learn how to reduce and avoid toxins in your diet and household products.

10) Develop a support network. Friends, family, support groups, and online support³³ help by providing information and emotional support among other things, which can improve psychological well-being, and even improve survival³⁴. Practitioners who support health, such as acupuncturists and massage therapists may also be sources of support.

Danhauer, SC, J. A. Tooze, D. F. Farmer, et al. **Restorative Yoga for Women with Ovarian Or Breast Cancer: Findings from a Pilot Study.** *Journal of the Society for Integrative Oncology.* 2008 Mar; 62: 47-58.

Yoga has demonstrated benefit in healthy individuals and those with various health conditions. There are, however, few systematic studies to support the development of yoga interventions for cancer patients. Restorative yoga (RY) is a gentle type of yoga that has been described as "active relaxation." The specific aims of this pilot study were to determine the feasibility of implementing an RY intervention as a supportive therapy for women diagnosed with ovarian or breast cancer and to measure changes in self-reported fatigue, psychological distress and well-being, and quality of life. Fifty-one women with ovarian (n = 37) or breast cancer (n = 14) with a mean age of 58.9 years enrolled in this study; the majority (61%) were actively undergoing cancer treatment at the time of enrollment. All study participants participated in 10 weekly 75-minute RY classes that combined physical postures, breathing, and deep relaxation. Study participants completed questionnaires at baseline, immediately postintervention, and 2 months postintervention. Significant improvements were seen for depression, negative affect, state anxiety, mental health, and overall quality of life. Fatigue decreased between baseline and postintervention follow-up. Health-related quality of life improved between baseline and the 2-month follow-up. Qualitative feedback from participants was predominantly positive; relaxation and shared group experience were two common themes. Witek-Janusek, L, K. Albuquerque, K. R. Chroniak, C. Chroniak, R. Durazo-Arvizu and H. L. Mathews.

Effect of Mindfulness Based Stress Reduction on Immune Function, Quality of Life and Coping in Women Newly Diagnosed with Early Stage Breast Cancer. *Brain, Behavior, & Immunity.* 2008 Aug; 226: 969-981.

This investigation used a non-randomized controlled design to evaluate the effect and feasibility of a mindfulness based stress reduction (MBSR) program on immune function, quality of life (QOL), and coping in women recently diagnosed with breast cancer. Early stage breast cancer patients, who did not receive chemotherapy, self-selected into an 8-week MBSR program or into an assessment only, control group. Outcomes were evaluated over time. The first assessment was at least 10 days after surgery and prior to adjuvant therapy, as well as before the MBSR start-up. Further assessments were mid-MBSR, at completion of MBSR, and at 4-week post-MBSR completion. Women with breast cancer enrolled in the control group (Non-MBSR) were assessed at similar times. At the first assessment (i.e., before MBSR start), reductions in peripheral blood mononuclear cell NK cell activity (NKCA) and IFN-gamma production with increases in IL-4, IL-6, and IL-10 production and plasma cortisol levels were observed for both the MBSR and Non-MBSR groups of breast cancer patients. Over time women in the MBSR group re-established their NKCA and cytokine production levels. In contrast, breast cancer patients in the Non-MBSR group exhibited continued reductions in NKCA and IFN-gamma production with increased IL-4, IL-6, and IL-10 production. Moreover, women enrolled in the MBSR program had reduced cortisol levels, improved QOL, and increased coping effectiveness compared to the Non-MBSR group. In summary, MBSR is a program that is feasible for women recently diagnosed with early stage breast cancer and the results provide preliminary evidence for beneficial effects of MBSR; on immune function, QOL, and coping.

Dirksen, SR and D. R. Epstein. **Efficacy of an Insomnia Intervention on Fatigue, Mood and Quality of Life in Breast Cancer Survivors.** *J Adv Nurs.* 2008 Mar; 616: 664-675.

AIM: This paper is a report of a study to describe the efficacy of cognitive behavioural therapy for insomnia on fatigue, mood and quality of life in breast cancer survivors. BACKGROUND: Women who receive primary treatment for breast cancer often complain of insomnia. Rarely evaluated in insomnia intervention studies is the effect of cognitive behavioural treatment on the psychosocial outcomes of fatigue, mood and quality of life. METHOD: Data were

collected between December 2002 and March 2004 with 72 women who were at least 3 months post-completion of primary treatment without current evidence of disease. Women were randomly assigned to either the cognitive behavioural therapy for insomnia group, which received stimulus control instructions, sleep restriction therapy and sleep education and hygiene, or the component control group which received sleep education and hygiene only. The 10-week study consisted of 2 weeks of pre-treatment, 6 weeks of treatment and 2 weeks of post-treatment. Fatigue, mood and quality of life were measured at pre- and post-treatment. FINDINGS: Women receiving cognitive behavioural therapy for insomnia had significant improvements in fatigue, trait anxiety, depression and quality of life. The component control group also had statistically significant increases in quality of life, with a trend suggestive of lower depression at post-treatment. CONCLUSION: Globally, as the number of survivors in this population continues to grow, it is imperative that nurses continue testing interventions that may positively affect quality of life and the commonly experienced symptoms of fatigue, anxiety and depression.

Lewis, FM, B. B. Cochrane, K. A. Fletcher, et al. **Helping Her Heal: A Pilot Study of an Educational Counseling Intervention for Spouses of Women with Breast Cancer.** *Psychooncology.* 2008 Feb; 172: 131-137.

Breast cancer is known to cause substantial anxiety, depressed mood, and diminished marital functioning in the diagnosed woman's spouse. Despite the scope and magnitude of these issues, few intervention studies have included spouses or addressed the causes of their lower functioning. The purpose of this pilot study was to evaluate the short-term impact of a 5-session, clinic-based, educational counseling intervention for spouses whose wife was recently diagnosed with early stage breast cancer. The goals of the intervention were to enhance spouses' skills and confidence to communicate and interpersonally support his wife about the breast cancer as well as improve spouses' self-care, depressed mood, anxiety, and marital adjustment. Pre-post-test results obtained from 20 spouses from valid and reliable standardized questionnaires showed significant improvements in spouses' depressed mood, anxiety, skills, self-confidence, and self-care. Confidential post-intervention interviews with spouses and wives included detailed examples of positive changes in the spouse's communication and support to his wife about the breast cancer, diminished tension in the spouse, and improved quality in the couple's relationship. Further evaluation of the Helping Her Heal Program is warranted within a clinical trial. Copyright copyright 2007 John Wiley & Sons, Ltd.

Yang, H-, L. M. Thornton, C. L. Shapiro and B. L. Andersen. **Surviving Recurrence: Psychological and Quality-of-Life Recovery.** *Cancer.* 2008 01 Mar; 1125: 1178-1187.

BACKGROUND. To the authors' knowledge, data characterizing patients' psychosocial experiences after a recurrence diagnosis are limited. This report provides the physical, psychological, and quality-of-life trajectories of patients with recurrent breast cancer. In addition, patients with a well-documented trajectory - patients with their initial diagnosis of breast cancer - were included as a referent group, providing a metric against which to gauge the impact and course of cancer recurrence. METHODS. Patients with a newly diagnosed, recurrent (n = 69) or initial (n = 113) breast cancer were accrued. The groups did not differ with regard to age, race, education, family income, or partner status (all P values > .18). All patients were assessed shortly after diagnosis (baseline) and 4 months, 8 months, and 12 months later. Mixed-effects models were used to determine health status, stress, mood, and quality-of-life trajectories. RESULTS. In the year after a recurrence diagnosis, patients' physical health and functioning showed no improvement, whereas quality of life and mood generally improved, and stress declined. Compared with patients who were coping with their first diagnosis, patients with recurrence had significantly lower anxiety and confusion. In contrast, physical functioning was poorer among recurrence patients, quality-of-life improvement was slower, and cancer-related distress was high as that of the initially diagnosed patient. Slower quality-of-life recovery was most apparent among younger patients (aged <54 years).

CONCLUSIONS. Despite the physical burden, patients with recurrent breast cancer exhibit considerable resilience, with steady improvements in psychological adjustment and quality of life during the year after diagnosis. Management of patients' physical symptoms is particularly important, because patients cope with recurrent breast cancer as a chronic illness. copyright 2008 American Cancer Society.

Frisk, J, S. Carlhall, A. -C Kallstrom, L. Lindh-Astrand, A. Malmstrom and M. Hammar. **Long-Term Follow-Up of Acupuncture and Hormone Therapy on Hot Flushes in Women with Breast Cancer: A Prospective, Randomized, Controlled Multicenter Trial.** *Climacteric.* 2008 112: 166-174. Objective: To evaluate the effects of electro-acupuncture (EA) and hormone therapy (HT) on vasomotor symptoms in women with a history of breast cancer. Methods: Forty-five women were randomized to EA (n = 27) for 12 weeks or HT (n = 18) for 24 months. The number of and distress caused by hot flushes were registered daily before, during and up to 24 months after start of treatment. Results: In 19 women who completed 12 weeks of EA, the median number of hot flushes/24 h decreased from 9.6 (interquartile range (IQR) 6.6-9.9) at baseline to 4.3 (IQR 1.0-7.1) at 12 weeks of treatment (p < 0.001). At 12 months after start of treatment, 14 women with only the initial 12 weeks of EA had a median number of flushes/24 h of 4.9 (IQR 1.8-7.3), and at 24 months seven women with no other treatment than EA had 2.1 (IQR 1.6-2.8) flushes/24 h. Another five women had a decreased number of flushes after having additional EA. The 18 women with HT had a baseline median number of flushes/24 h of 6.6 (IQR 4.0-8.9), and 0.0 (IQR 0.0-1.6; p=0.001) at 12 weeks. Conclusion: Electro-acupuncture is a possible treatment of vasomotor symptoms for women with breast cancer and should be further studied for this group of women. copyright 2008 International Menopause Society.

Gould, J, S. Wilson and P. Grassau. **Reflecting on Spirituality in the Context of Breast Cancer Diagnosis and Treatment.** *Canadian Oncology Nursing Journal.* 2008 181: 34-46. In this first part of a longitudinal study, women were asked to reflect on the meaning of spirituality in the first year following diagnosis of breast cancer. Twenty-two women were interviewed at approximately one year post-diagnosis. This paper reports on a thematic analysis of these interviews. Participants' responses reflected three higher-order themes: relationship with a higher power, a deepening sense of self, and spiritual connection with others. The findings provide an enhanced understanding of how spirituality frames and impacts (both positively and negatively) the experience of breast cancer immediately following diagnosis and treatment. Most participants in this study found strength and support in their experiences of spirituality. They also spoke at times of feeling disconnected from or abandoned by God. The paper concludes with a discussion of how cancer health professionals might respond to the spiritual needs expressed by women living with cancer.

Ligibel, JA, N. Campbell, A. Partridge, et al. **Impact of a Mixed Strength and Endurance Exercise Intervention on Insulin Levels in Breast Cancer Survivors** *Journal of Clinical Oncology.* 2008 Feb 20; 266: 907-912. PURPOSE: Accumulating data suggest that exercise may affect breast cancer risk and outcomes. Studies have demonstrated that high levels of insulin, often seen in sedentary individuals, are associated with increased risk of breast cancer recurrence and death. We sought to analyze whether exercise lowered insulin concentrations in breast cancer survivors. METHODS: One hundred one sedentary, overweight breast cancer survivors were randomly assigned either to a 16-week cardiovascular and strength training exercise intervention or to a usual care control group. Fasting insulin and glucose levels, weight, body composition, and circumference at the waist and hip were collected at baseline and 16 weeks. RESULTS: Baseline and 16-week measurements were available for 82 patients. Fasting insulin concentrations decreased by an average of 2.86 microU/mL in the exercise group (P = .03), with no significant change in the control group (decrease of 0.27 microU/mL, P = .65). The change in insulin levels in the exercise group seemed greater than the change in

controls, but the comparison did not reach statistical significance (P = .07). There was a trend toward improvement in insulin resistance in the exercise group (P = .09) but no change in fasting glucose levels. The exercise group also experienced a significant decrease in hip measurements, with no change in weight or body composition. CONCLUSION: Participation in an exercise intervention was associated with a significant decrease in insulin levels and hip circumference in breast cancer survivors. The relationship between physical activity and breast cancer prognosis may be mediated, in part, through changes in insulin levels and/or changes in body fat or fat deposition.

Milne, HM, K. E. Wallman, S. Gordon and K. S. Courneya. **Effects of a Combined Aerobic and Resistance Exercise Program in Breast Cancer Survivors: A Randomized Controlled Trial.** *Breast Cancer Res Treat.* 2008 Mar; 1082: 279-288. Few randomized controlled trials have examined the effects of combined aerobic and resistance training in breast cancer survivors soon after completing adjuvant therapy. Breast cancer survivors (N = 58) within 2 years of completing adjuvant therapy were randomly assigned to an immediate exercise group (IEG; n = 29) or a delayed exercise group (DEG; n = 29). The IEG completed 12 weeks of supervised aerobic and resistance exercise, three times per week. The DEG completed the program during the next 12 weeks. Participants completed patient-rated outcomes at baseline, 6, 12, 18 and 24 weeks. The primary endpoint was overall quality of life (QoL) measured by the Functional Assessment of Cancer Therapy-Breast scale. Secondary endpoints were fatigue, social physique anxiety, and physical fitness. Follow-up data was obtained on 97% of participants and exercise adherence was 61.3%. Repeated measures analyses of variance revealed a significant group by time interaction for overall QoL (P < 0.001). Specifically, QoL increased in the IEG from baseline to 12 weeks by 20.8 points compared to a decrease in the DEG of 5.3 points (mean group difference = 26.1; 95% CI = 18.3-32.7; P < 0.001). From 12 to 24 weeks, QoL increased in the DEG by 29.5 points compared to an increase of 6.5 points in the IEG (mean group difference = 23.0; 95% CI = 16.3-29.1; P < 0.001). Similar results were obtained for the secondary endpoints. Combined aerobic and resistance exercise soon after the completion of breast cancer therapy produces large and rapid improvements in health-related outcomes. copyright 2007 Springer Science+Business Media, LLC.

Keays, KS, S. R. Harris, J. M. Lucyshyn and D. L. Macintyre. **Effects of Pilates Exercises on Shoulder Range of Motion, Pain, Mood, and Upper-Extremity Function in Women Living with Breast Cancer: A Pilot Study** *Phys Ther.* 2008 04; 884: 494-510. BACKGROUND AND PURPOSE: The purpose of this study was to examine the effects of Pilates exercises on shoulder range of motion (ROM), pain, mood, and upper-extremity (UE) function in women who had been treated for breast cancer. Participants: The participants were 4 women who had undergone axillary dissection and radiation therapy for stage I to IV breast cancer. METHODS: A nonconcurrent, multiple-baseline, single-subject research design was used to examine the effects of Pilates exercises on the 4 outcomes. RESULTS: Visual analyses of the data suggest a modest effect of the Pilates exercise program in improving shoulder abduction and external rotation ROM. Statistically significant improvement in shoulder internal and external rotation in the affected UE was shown for the one participant with pre-existing metastatic disease. The improving baselines seen for pain, mood, and UE function data made it impossible to assess the effects of Pilates exercises on those outcomes. No adverse events were experienced. DISCUSSION AND CONCLUSION: Pilates exercises may be an effective and safe exercise option for women who are recovering from breast cancer treatments; however, further research is needed.

Parry, DC **The Contribution of Dragon Boat Racing to Women's Health and Breast Cancer Survivorship.** *Qual Health Res.* 2008 Feb; 182: 222-233. Survivorship is one of the least studied and thus least understood aspects of a breast cancer experience. Defined as a life-long, dynamic process, survivorship begins when people have completed medical

treatment for breast cancer, yet live with the memories of their treatment and the possibility of a cancer recurrence. The numbers of women surviving breast cancer are growing, which means research on survivorship is imperative. In this article, I examine dragon boat racing (DBR) for breast cancer survivors. DBR has been adapted to a woman-centered, community-based leisure pursuit focused on life after medical treatment for breast cancer. Active interviews with 11 participants revealed that DBR contributes to women's social, emotional, physical, spiritual, and mental health. In turn, feeling healthy in these five dimensions enhanced the women's survivorship of breast cancer. The findings demonstrate the roles of leisure in the health and well-being of women who are breast cancer survivors. copyright 2008 Sage Publications.

Payne, JK, J. Held, J. Thorpe and H. Shaw. **Effect of Exercise on Biomarkers, Fatigue, Sleep Disturbances, and Depressive Symptoms in Older Women with Breast Cancer Receiving Hormonal Therapy** *Oncol Nurs Forum*. 2008 07; 354: 635-642.

Purpose/Objectives: To compare the effectiveness of a prescribed home-based walking exercise intervention with usual care in older women receiving hormonal treatment for breast cancer, and to examine relationships among levels of the cortisol, serotonin, interleukin-6, and bilirubin biomarkers and fatigue, sleep disturbances, and depressive symptoms. **Design:** Longitudinal randomized clinical trial. **Setting:** A National Cancer Institute-designated cancer center in the southeastern United States. **Sample:** 20 women (aged 55 years or older) with breast cancer receiving hormonal treatment. **Methods:** Participants were randomized to a walking exercise intervention or usual care. Laboratory samples and the Pittsburgh Sleep Quality Index (PSQI), the Piper Revised Fatigue Scale, and the Center for Epidemiological Studies-Depression Scale were collected at the initial clinic visit and at 12 weeks from the groups. Questionnaires also were collected at weeks 2 and 14. **Main Research Variables:** Fatigue, sleep disturbances, depressive symptoms, biomarkers, and exercise. **Findings:** Effect of the exercise intervention on sleep scores was highly significant between groups. Exercise group scores on the PSQI decreased significantly over time (indicating improved sleep quality), although scores did not change significantly within the control group. Sleep actigraphy also showed significantly shorter actual wake time and less movement in the exercise group. Serotonin levels also were significantly affected by the intervention. **Conclusions:** Data suggest that a walking exercise intervention improves sleep in older women receiving hormonal treatment for their breast cancer. Serotonin levels may be a useful biomarker when assessing sleep disturbances in this group. **Implications for Nursing:** Clinicians need to be aware that older women receiving hormonal treatment for their breast cancer may experience fatigue, sleep disturbances, and depressive symptoms. Homebased walking activity may reduce symptom severity in this group.

Neuhouser, ML, B. Sorensen, B. W. Hollis, et al. **Vitamin D Insufficiency in a Multiethnic Cohort of Breast Cancer Survivors.**

Am J Clin Nutr. 2008 Jul; 881: 133-139. **BACKGROUND:** Little is known about vitamin D status in breast cancer survivors. This issue is important because vitamin D influences pathways related to carcinogenesis. **OBJECTIVE:** The objective of this report was to describe and understand vitamin D status in a breast cancer survivor cohort. **DESIGN:** Data are from the Health, Eating, Activity, and Lifestyle study. With the use of a cross-sectional design, we examined serum concentrations of 25-hydroxyvitamin D [25(OH)D] in 790 breast cancer survivors from western Washington state, New Mexico, and Los Angeles County. Cancer treatment data were obtained from Surveillance, Epidemiology, and End Results registries and medical records. Fasting blood, anthropometry, and lifestyle habits were collected after diagnosis and treatment. We examined distributions of 25(OH)D by race-ethnicity, season, geography, and clinical characteristics. Multivariate regression tested associations between 25(OH)D and stage of disease. **RESULTS:** Five hundred ninety-seven (75.6%) of the women had low serum 25(OH)D, suggesting vitamin D insufficiency or frank deficiency. The overall mean (+/-SD) was 24.8 +/- 10.4 ng/mL, but it was lower for African Americans (18.1 +/- 8.7 ng/mL) and Hispanics (22.1 +/- 9.2 ng/mL).

Women with localized (n = 424) or regional (n = 182) breast cancer had lower serum 25(OH)D than did women with in situ disease (n = 184) (P = 0.05 and P = 0.03, respectively). Multivariate regression models controlled for age, body mass index (in kg/m²), race-ethnicity, geography, season, physical activity, diet, and cancer treatments showed that stage of disease independently predicted serum 25(OH)D (P = 0.02). **CONCLUSIONS:** In these breast cancer survivors, the prevalence of vitamin D insufficiency was high. Clinicians might consider monitoring vitamin D status in breast cancer patients, together with appropriate treatments, if necessary.

Peled, R, Devora Carmil, Orly Siboni-Samocho and Ilana Shoham-Vardi. **Breast Cancer, Psychological Distress and Life Events among Young Women** *BMC Cancer*. 2008 81: 245.

M3: 10.1186/1471-2407-8-245

Since 1983, studies have suggested an interaction between the severe life events, psychological distress and the etiology of Cancer. However, these associations are still under dispute. The aim of the present study was to examine the relationship between life events, psychological distress and Breast Cancer (BC) among young women. **METHODS:** A case control study. The study population included 622 women, under the age of 45 years. 255 were diagnosed for BC, and 367 were healthy women. A validated Brief Symptom Inventory (BSI) and Life Event Questionnaire were used. **RESULTS:** The cases presented significantly higher scores of depression compared to the controls and significant lower scores of happiness and optimism. A significant difference was found when comparing the groups according to the cumulative number of life events (two or more events). A multivariate analysis suggest that exposure to more than one life event is positively associated with BC [Odds Ratio(OR) :1.62 95% Confidence Interval (CI): 1.09–2.40], and that a general feeling of happiness and optimism has a "protective effect" on the etiology of BC. (OR-0.75, 95% CI:0.64–0.86). **CONCLUSION:** Young women who were exposed to a number of life events, should be considered as a risk group for BC and treated accordingly.

Premkumar, VG, S. Yuvaraj, S. Sathish, P. Shanthi and P. Sachdanandam. **Anti-Angiogenic Potential of CoenzymeQ₁₀, Riboflavin and Niacin in Breast Cancer Patients Undergoing Tamoxifen Therapy.** *Vascular Pharmacology*. 2008 Apr; 484-6: 191-201.

Tumour angiogenesis is a complex mechanism consisting of multi-step events including secretion or activation of angiogenic factors by tumour cells, activation of proteolytic enzymes, proliferation, migration and differentiation of endothelial cells. Both primary and metastatic tumours in the breast are dependent on angiogenesis. In the present study, 84 breast cancer patients were randomized to receive a daily supplement of CoQ₁₀ 100 mg, riboflavin 10 mg and niacin 50 mg (CoRN), one dosage per day along with tamoxifen (TAM) 10 mg twice a day. Serum pro-angiogenic levels were elevated in untreated breast cancer patients (Group II) and their levels were found to be reduced in breast cancer patients undergoing TAM therapy for more than 1 year (Group III). When these group III breast cancer patients were supplemented with CoRN for 45 days (Group IV) and 90 days (Group V) along with TAM, a further significant reduction in pro-angiogenic marker levels were observed. Supplementing CoRN to breast cancer patients has found to decrease the levels of pro-angiogenic factors and increase the levels of anti-angiogenic factors. A reduction in pro-angiogenic marker levels attributes to reduction in tumour burden and may suggest good prognosis and efficacy of the treatment, and might even offer protection from cancer metastases and recurrence. copyright 2008 Elsevier Inc. All rights reserved.

Megan Wiebe, Clinical Librarian, compiles Research Updates under the supervision of the editorial board. The editorial board includes: Dr. Hal Gunn, CEO and Co-founder, Dr. Janice Wright, Dr. Teresa Clarke, Dr. Ron Puhky, and Dr. Walter Lemmo, ND. Megan has a Master's degree in Library and Information Studies and a Bachelor's degree in Psychology from the University of British Columbia, and has worked in a variety of medical library settings. Megan can be contacted at mwiebe@inspirehealth.ca or 604-734-7125, ext 238.

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