

Review

## Complementary and Alternative Medicine (CAM) Usage in Breast Cancer

Birthe Osorio <sup>\*</sup>, Karsten Münstedt <sup>\*</sup>

Ortenau Clinic, Ebertplatz 12, 77654 Offenburg, Germany; E-Mails: birthe.osorio@ortenau-klinikum.de; karsten.muenstedt@ortenau-klinikum.de

<sup>\*</sup> **Correspondence:** Birthe Osorio and Karsten Münstedt; E-Mails: birthe.osorio@ortenau-klinikum.de; karsten.muenstedt@ortenau-klinikum.de

**Academic Editor:** Reginald Halaby

**Special Issue:** [Complementary and Alternative Therapies for Breast Cancer](#)

*OBM Integrative and Complementary Medicine*  
2019, volume 4, issue 3  
doi:10.21926/obm.icm.1903043

**Received:** February 27, 2019

**Accepted:** June 24, 2019

**Published:** July 05, 2019

### Abstract

**Background:** In particular, the women with breast cancer seek methods offered by complementary and alternative medicine (CAM). Unfortunately, the value of most of such methods remains unclear.

**Methods:** The present review was aimed at identifying reasonable strategies for patients with breast cancer on the basis of the current literature.

**Results:** The analyses revealed that there is no evidence of alternative medicine which might result in healing. However, several strategies are available which could improve patients' well-being during active conventional treatment. In addition, certain possibilities are available which might assist in improving the chances of a cure. A few examples of the positive strategies that might result in improvement in patient prognosis are vitamin D supplementation, green tea, flaxseeds, and soy. Methods utilizing honey or cryotherapy could prove to be helpful with oral mucositis.

**Conclusions:** A few rationally established methods which may truly be considered integrative according to the definition provided by the National Center of Complementary and Integrative Health were identified from the literature and reported in the present review. It is suggested that physicians should counsel their patients, providing information regarding



© 2019 by the author. This is an open access article distributed under the conditions of the [Creative Commons by Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium or format, provided the original work is correctly cited.

the benefits of using these methods in comparison to those which are being commonly used so far.

### **Keywords**

Breast cancer; integrative medicine; alternative medicine; complementary medicine

## **1. Introduction**

Nowadays, breast cancer is a major health problem being encountered worldwide. However, novel treatment concepts, such as breast-conserving therapy, sentinel node biopsy, and neoadjuvant chemotherapy, genetic analyses of tumor tissue, as well as novel pharmaceutical approaches, such as HER2-blockade, CDK 4/6 inhibitors, and antiangiogenic treatments, have led to significant improvements in terms of improved survival rates as well as enhanced quality of life. It is likely that the growing understanding of the biology of breast cancer would lead to further improvements in this regard within the next decade. In the near future, physicians would be able to omit lymphadenectomies, perhaps even surgery, in the cases of breast cancer for which the neoadjuvant approaches are likely to lead to complete histopathological remissions.

Despite these promising facts, a few women prefer moving away from conventional medicine, and instead use unconventional methods or complementary and alternative medicine (CAM). In the last few decades, the demand for CAM has risen continually. A study conducted in the United States of America demonstrated that patients particularly used exercises (45%), diets (34%), herbal therapy (37%), and acupuncture (16%) [1]. In Germany, approximately 43% of all breast cancer patients utilized complementary medicine for the treatment of various symptoms [2].

The various methods may be categorized into three groups, as suggested by the National Center of Complementary and Integrative Health (NCCIH; USA):

- Complementary medicine: If a non-mainstream practice is used together with conventional medicine.
- Alternative medicine: If a non-mainstream practice is used in place of conventional medicine.

People often use the terms “alternative” and “complementary” interchangeably, although these two terms refer to two entirely different concepts in medicine (<https://nccih.nih.gov/health/integrative-health#term>; accessed: February 6<sup>th</sup>, 2019). The term “integrative medicine” has been coined recently. Again, this term is used interchangeably with the terms “alternative” and “complementary”. However, the NCCIH has defined “integrative medicine” as the incorporation of complementary approaches into mainstream healthcare through rigorous scientific investigation. Unfortunately, the process of integration has not been completed so far, and to date, no methods may be referred to as integrative in the real sense. In the present review, the terms have been used according to their respective definitions provided by the NCCIH. It is believed that the right to label any method as “integrative medicine” should not be available for everyone. Similar to the Council Regulation (EEC) No. 2092/91 of 24 June, 1991 on the organic production of agricultural products and the indications referring thereto on the agricultural products and foodstuffs, public health authorities should evaluate the methods in order to identify

the ones that have sufficiently proven their usefulness and may thus be referred to as “integrative” (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3A121118>; accessed: May 6<sup>th</sup>, 2018).

## **2. Materials and Methods**

The present review is based on the analysis of the current literature. The goal was to identify reasonable treatment strategies which could provide some benefit to the patients, and the benefits of which have been confirmed in clinical trials or by systematic reviews or meta-analyses.

## **3. Results**

### **3.1 Alternative Medicine and Breast Cancer**

Several people claim that it is possible to cure breast cancer by using means other than those available in conventional medicine. However, so far, no valid proofs supporting the efficacy of alternative methods against breast cancer have been presented from the side of the protagonists [3]. To date, only five scientific analyses have been conducted in this regard, and none of these analyses concluded that alternative medicine could serve as a reasonable alternative in the treatment of cancer. On the contrary, there is evidence that the use of methods belonging to alternative medicine is associated with poorer chances of survival [4-8].

Furthermore, several clinical trials have been conducted and systematic reviews have been reported on various alternative methods. For instance, Moertel et al. demonstrated that there were no significant differences between the patients treated with high doses of Vitamin C and the placebo-treated control patients. Similarly, Creagan et al. demonstrated that no significant benefits occurred to patients with advanced cancer when they were treated with high doses of Vitamin C. Therefore, none of Vitamin C, enzymes, and laetrile held any value for the treatment of primary breast cancer or metastatic breast cancer [9-12]. However, several questions remain unanswered to date. We do not yet have complete information regarding:

- The percentage of women who primarily turn to these non-conventional methods of alternative medicine.
- The percentage of women who would return to conventional medicine after experiencing the failure of non-conventional methods of alternative medicine.
- The percentage of women who would continue with the alternative medicine despite its failures.
- The percentage of cases that may have to be considered responders to alternative medicine.

Hopefully, further analyses would be conducted on these topics in the future. The use of methods of alternative medicine must be discouraged, unless there is evidence that the value of a particular method has been proven.

### **3.2 Complementary Medicine and Breast Cancer**

In complementary medicine, non-mainstream practices are used together with conventional medicine. The patients using complementary medicine have various reasons for doing so; for example, in order to:

- make their own contribution to improving the situation.
- do something which corresponds to the patients' lay theories behind the development of breast cancer.
- reduce the side effects of conventional medicine.
- put an effort for improving the efficacy of conventional medicine.

### ***3.3 Patients' Own Contributions and Lay Etiology***

The currently available knowledge regarding breast cancer is so enormous that even physicians are no longer able to understand it completely. However, even with the understanding of the current concepts in breast cancer, one of the most important questions prevalent among patients remains unanswered: "Why did I get breast cancer?" Every breast cancer patient attempts to receive an answer to this question, and consequently, seeks a cause-related therapy which is unavailable in conventional medicine [13]. Although the efficiency of several methods of complementary medicine has not been proven, 40% of the breast cancer patients report having experienced significant improvement in their symptoms [1]. In several cases, the placebo effect could be the reason behind the reported success. The risks associated with the complementary methods used in such situations vary with the selected method of treatment. Drug interactions appear to be the greatest issue in this regard. McLay et al. demonstrated that 29% of the patients consume supplements with estrogenic activity, such as soya or red clover, 38% of the treated patients consume herbal products such as Echinacea, peppermint, grapefruit, garlic, or ginseng, which have the potential to interact with the adjuvant endocrine therapies [14]. Several patients are unaware that these products may essentially interfere with the medications prescribed to them.

### ***3.4 Reduction in Side Effects and Improved Outcomes with CAM***

As mentioned earlier, the patients with breast cancer may be confronted with surgery, and eventually hormonal therapy, chemotherapy, radiotherapy, and treatments with monoclonal antibodies, small molecules, and/or bisphosphonates, all of which may exert severe side effects. In certain cases, conventional medicine has been able to provide means against a few of these side effects; for example, mesna decreases the risk of bleeding from the bladder in patients on cyclophosphamide or ifosfamide medication. However, there are only a minute number of offerings from conventional medicine that provide a reduction in side effects. The fact that less than half of all the breast cancer patients complete the adjuvant hormone therapy recommended to them (Hershman et al., 2010) underlines the importance of providing support to the patients in this context. Non-adherence to adjuvant chemotherapy has hardly been studied properly, although it is clear that non-adherence to conventional treatments worsens the chances of extended survival or cure. Although direct side effects of these treatments are not necessarily the reason behind the discontinuation of therapy; these side effects may play a role in this regard. In order to ease the side effects and allow the patients a better quality of life during the treatment, complementary methods appear to be helpful.

In contrast, there are several claims regarding the supposed potential of various complementary methods against the side effects and achieving an improved outcome. Unfortunately, it is not within the scope of the present review to enlist or summarize the various

methods which have failed to provide evidence for reasonable usage. The study on carnitine for taxan-induced peripheral neuropathy in the women undergoing adjuvant breast cancer therapy demonstrated that even the treatments based on natural materials may result in severe problems, such as increasing peripheral neuropathy observed with the usage of carnitine [15]. Therefore, it appears to be important to establish integrative approaches, implying that the consultants offering advice to patients on this topic should search for an optimal approach specific to a patient's problem on the basis of information available on its clinical trials, efficacy, and safety. The following chapters of the review will focus on the methods with proven value, and may probably be referred to as "integrative" one day.

### **3.5 "Integrative Medicine" for the Treatment of Side Effects of Cancer Treatment**

Lyman et al. reviewed various methods which could be used in addition to the methods of conventional medicine [16]. The treatment methods which received grade A and B recommendations according to the SIO Guidelines have been summarized below:

- Recommended treatments for the reduction of anxiety, stress, depression, and mood disturbance: relaxation, meditation, music therapy, stress management, yoga, and massage.
- For a better quality of life: meditation and yoga.
- For chemotherapy-induced nausea and vomiting: acupuncture and electroacupuncture.

Several important aspects in this regard are missing from the review reported by Lyman et al., including the followings:

**Fatigue:** According to a meta-analysis conducted by Mustian et al., exercise and psychological interventions must be considered effective in reducing fatigue during and after the cancer treatment [17]. Both exercise and psychological interventions have been observed to perform significantly better than the available pharmaceutical options.

**Oral mucositis during chemotherapy:** Systematic reviews and several more recent studies on this topic have provided evidence that honey is effective as a preventative and therapeutic measure for oral mucositis [18, 19]. Although the chemotherapeutic agents were tested only on pediatric oncology patients, it could be inferred from the results of these studies that similar results would be obtained in adult oncology patients as well. Another possibility is oral cryotherapy. A meta-analysis on this topic demonstrated the efficacy of cryotherapy only in the patients receiving fluorouracil-based chemotherapy, while this therapy is also administered to breast cancer patients. However, it may be assumed that oral cryotherapy would also be able to reduce oral mucositis in combination with other chemotherapeutic drugs [20]. There is also evidence that low-level laser therapy results in an improvement in the chemotherapy-induced oral mucositis [21].

**Lymphoedema:** A trial demonstrated that appropriately administered upper-body resistance exercise is safe and may aid in the management of lymphoedema [22].

**Side effects of hormone therapy:** The side effects of hormone therapy include hot flashes and arthralgia. Unfortunately, no effective measures have been identified so far to ease the symptoms in patients. However, hypnosis and flaxseed may be considered interesting options [23–25]. Flaxseed possesses anti-estrogen activity, and its chemical component is able to bind to cell

receptors resulting in a decrease in the cell growth. Certain studies have demonstrated that flaxseed may have an important role in decreasing the risk of breast cancer [39]. However, further studies, especially clinical trials, are required to confirm this. Further recommendations include weight loss (for achieving an effect, 10% decrease in the usual weight is required) and the administration of *Cimicifuga racemosa*, eventually in combination with St John's Wort in cases with reduced auxiliary mood swings [26].

### **3.6 "Integrative Medicine" for Improvement in Chances of Survival**

Evidence regarding this topic is scarce, and relies mainly on a few *in vitro* studies. Selenium may have a role in this, as it has been demonstrated to be important for the cytotoxic action of taxanes, anthracyclines, and tamoxifen [27]. No clinical trials have investigated this crucial topic so far. Since it was revealed in a study that selenium exposure decreased the risk of breast cancer, it may be worthwhile to measure the serum levels of selenium in breast cancer cases and eventually undertake a supplementation as one of the treatment options [28].

The most interesting substance in this context is Vitamin D. Two previous studies have demonstrated that Vitamin D enhances the efficacy of monoclonal antibodies [29, 30]. The study by Zeichner et al. [29] focused on trastuzumab, a monoclonal antibody, which is generally used in HER2+ breast cancer patients. It has also been demonstrated that Vitamin D levels affect the pathologic complete response rates in a neoadjuvant setting [31]. Furthermore, it was observed that the levels of circulating 25-hydroxyvitamin D influenced the outcomes in breast cancer patient [32]. Therefore, it appears appropriate to advise the breast cancer patients to analyze their Vitamin D status, and eventually undertake a supplementation as required. Since Vitamin D deficiency was also observed to be a cofactor for the chemotherapy-induced mucocutaneous toxicity and dysgeusia, supplementation of this Vitamin may also improve skin toxicity [32].

### **3.7 "Integrative Medicine" for Reduction in Risk of Recurrence**

Patients remain totally engrossed during the primary treatment for breast cancer. They stay in continual contact with the oncologists and oncology nurses. However, with the completion of the primary therapy, patients get more time to reflect on what happened, and therefore, begin to question whether enough has been done to ensure optimal chances of survival. In such a situation, they seek advice on what could be done further, and are, therefore, confronted with a multitude of dubious offers [3]. Depending on the country of residence and the associated prevailing concepts regarding the etiology of the disease, patients use various methods [13]. Again, rather than summarizing the numerous methods and substances which have been reported to have failed to exhibit any benefits, the following text enlists the approaches that might prove to be beneficial.

- Green tea: A meta-analysis revealed evidence that green tea not only reduces the risk of breast cancer, it also reduces the risk of recurrence of the disease [34].
- Soy: Two meta-analyses concluded that the consumption of soy isoflavones is associated with better chances of survival [35-37], especially in the ER negative, ER+/PR+, and postmenopausal patients [35].

- Flaxseed: Besides the beneficial effects on hot flashes and mental health, studies have suggested that flaxseed results in a decreased risk of primary breast cancer and also lower breast cancer mortality [25].
- Ginseng: Regular users of ginseng exhibited a significantly reduced risk of death, for total mortality as well as for disease-specific mortality/recurrence [38].
- Ginseng usage has also been reported to be associated with a better quality of life, especially in terms of psychological and social well-being.

#### **4. Discussion**

The demand for complementary and alternative medicine (CAM) among breast cancer patients is enormous. Without consultation with experts who represent holistic medicine in a literal sense, patients turn to methods with no proven value, which might even be disadvantageous, especially in regard to drug interaction. In order to avoid such situations and maximize the positive effects of treatments, it appears to be of great importance that the physicians analyze the topic of CAM in a rational manner. Patients with breast cancer should be counseled appropriately, and offered methods which would probably improve the situation beyond the placebo effect. Such an approach is similar to the killing two birds with one stone, i.e., meeting patients' demands on one side and ensuring sufficient chances of improvement in the situation on the other side. In order to ensure adequate consultation for patients, more clinical trials in CAM are required to develop it into evidence-based medicine.

#### **5. Conclusions**

It might be concluded that alternative medicine may not be able to replace conventional treatment in breast cancer. However, complementary strategies must be identified on the basis of evidence-based medicine, considering the efficacy, safety, and costs of the treatment methods. The present review reveals that there are sufficient data to enable the authorities to classify certain methods as "integrative" according to the definition provided by the NCCIH.

#### **Author Contributions**

Dr. Osorio and Prof. Muenstedt contributed equally to this Investigation.

#### **Funding**

This work did not receive any specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

#### **Competing Interests**

The authors have declared that no competing interests exist.

## References

1. Jacoby VL, Jacoby A, Learman LA, Schembri M, Gregorich SE, Jackson R, et al. Use of medical, surgical and complementary treatments among women with fibroids. *Eur J Obstet Gynecol Reprod Biol.* 2014; 182: 220-225.
2. Brücker B, Groenewold M, Schoefer Y, Schäfer T. The use of complementary alternative medicine (CAM) in 1001 German adult: Results of a population-based telephone survey. *Gesundheitswesen.* 2008; 70: e29-e36
3. Münstedt K. *Komplementäre und alternative Krebstherapien.* Landsberg/Lech, Germany (Ecomed); 2011.
4. Joseph K, Vrouwe S, Kamruzzaman A, Balbaid A, Fenton D, Berendt R, et al. Outcome analysis of breast cancer patients who declined evidence-based treatment. *World J Surg Oncol.* 2012; 10: 118.
5. Han E, Johnson N, DelaMelena T, Glissmeyer M, Steinbock K. Alternative therapy used as primary treatment for breast cancer negatively impacts outcomes. *Ann Surg Oncol.* 2011; 18: 912-916.
6. Chang EY, Glissmeyer M, Tonnes S, Hudson T, Johnson N. Outcomes of breast cancer in patients who use alternative therapies as primary treatment. *Am J Surg.* 2006; 192: 471-473.
7. Bagenal FS, Easton DF, Harris E, Chilvers CE, McElwain TJ. Survival of patients with breast cancer attending Bristol Cancer Help Centre. *Lancet.* 1990; 336: 606-610.
8. Johnson SB, Park H, Gross CP, Yu JB. Use of alternative medicine for cancer and its impact on survival. *J Natl Cancer Inst.* 2018; 110: 121-124.
9. Milazzo S, Horneber M. Laetrile treatment for cancer. *Cochrane Database Syst Rev.* 2015; 4: CD005476.
10. Chabot JA, Tsai WY, Fine RL, Chen C, Kumah CK, Antman KA, et al. Pancreatic proteolytic enzyme therapy compared with gemcitabine-based chemotherapy for the treatment of pancreatic cancer. *J Clin Oncol.* 2010; 28: 2058-2063.
11. Moertel CG, Fleming TR, Creagan ET, Rubin J, O'Connell MJ, Ames MM. High-dose vitamin C versus placebo in the treatment of patients with advanced cancer who have had no prior chemotherapy. A randomized double-blind comparison. *N Engl J Med.* 1985; 312: 137-141.
12. Creagan ET, Moertel CG, O'Fallon JR, Schutt AJ, O'Connell MJ, Rubin J, et al. Failure of high-dose vitamin C (ascorbic acid) therapy to benefit patients with advanced cancer. A controlled trial. *N Engl J Med.* 1979; 301: 687-690.
13. Münstedt K, Kirsch K, Milch W, Sachsse S, Vahrson H. Unconventional cancer therapy--survey of patients with gynaecological malignancy. *Arch Gynecol Obstet.* 1996; 258: 81-88.
14. McLay JS, Stewart D, George J, Rore C, Heys SD. Complementary and alternative medicines use by Scottish women with breast cancer. What, why and the potential for drug interactions? *Eur J Clin Pharmacol.* 2012; 68: 811-819.
15. Hershman DL, Unger JM, Crew KD, Minasian LM, Awad D, Moinpour CM, et al. Randomized double-blind placebo-controlled trial of acetyl-L-carnitine for the prevention of taxane-induced neuropathy in women undergoing adjuvant breast cancer therapy. *J Clin Oncol.* 2013; 31: 2627-2633.

16. Lyman GH, Greenlee H, Bohlke K, Bao T, DeMichele AM, Deng GE, et al. Integrative therapies during and after breast cancer treatment: ASCO endorsement of the SIO Clinical Practice Guideline. *J Clin Oncol.* 2018; 36: 2647-2655.
17. Mustian KM, Alfano CM, Heckler C, Kleckner AS, Kleckner IR, Leach CR, et al. Comparison of pharmaceutical, psychological, and exercise treatments for cancer-related fatigue: A meta-analysis. *JAMA Oncol.* 2017; 3: 961-968.
18. Friend A, Rubagumya F, Cartledge P. Global Health Journal Club: Is honey effective as a treatment for chemotherapy-induced mucositis in paediatric oncology patients? *J Trop Pediatr.* 2018; 64: 162-168.
19. Münstedt K, Momm F, Hübner J. Honey in the management of side effects of radiotherapy- or radio/chemotherapy-induced oral mucositis. A systematic review. *Complement Ther Clin Pract.* 2019; 34: 145-152.
20. Wang L, Gu Z, Zhai R, Zhao S, Luo L, Li D, et al. Efficacy of oral cryotherapy on oral mucositis prevention in patients with hematological malignancies undergoing hematopoietic stem cell transplantation: A meta-analysis of randomized controlled trials. *PLoS One.* 2015; 10: e0128763.
21. He M, Zhang B, Shen N, Wu N, Sun J. A systematic review and meta-analysis of the effect of low-level laser therapy (LLLT) on chemotherapy-induced oral mucositis in pediatric and young patients. *Eur J Pediatr.* 2018; 177: 7-17.
22. Cormie P, Pumpa K, Galvão DA, Turner E, Spry N, Saunders C, et al. Is it safe and efficacious for women with lymphedema secondary to breast cancer to lift heavy weights during exercise: A randomised controlled trial. *J Cancer Surviv.* 2013; 7: 413-424.
23. Berlière M, Roelants F, Watremez C, Docquier MA, Piette N, Lamerant S, et al. The advantages of hypnosis intervention on breast cancer surgery and adjuvant therapy. *Breast.* 2018; 37: 114-118.
24. Roberts RL, Na H, Yek MH, Elkins G. Hypnosis for hot flashes and associated symptoms in women with breast cancer. *Am J Clin Hypn.* 2017; 60: 123-136.
25. Flower G, Fritz H, Balneaves LG, Verma S, Skidmore B, Fernandes R, et al. Flax and breast cancer: A systematic review. *Integr Cancer Ther.* 2014; 13: 181-192.
26. Ruan X, Mueck AO, Beer AM, Naser B, Pickartz S. Benefit-risk profile of black cohosh (isopropanolic *Cimicifuga racemosa* extract) with and without StJohn's wort in breast cancer patients. *Climacteric.* 2019; 22: 1-9.
27. Vadgama JV, Wu Y, Shen D, Hsia S, Block J. Effect of selenium in combination with Adriamycin or Taxol on several different cancer cells. *Anticancer Res.* 2000; 20: 1391-1414.
28. Cai X, Wang C, Yu W, Fan W, Wang S, Shen N, et al. Selenium exposure and cancer risk: An updated meta-analysis and meta-regression. *Sci Rep.* 2016; 6: 19213.
29. Zeichner SB, Koru-Sengul T, Shah N, Liu Q, Markward NJ, Montero AJ, et al. Improved clinical outcomes associated with vitamin D supplementation during adjuvant chemotherapy in patients with HER2+ nonmetastatic breast cancer. *Clin Breast Cancer.* 2015; 15: e1-e11.
30. Bittenbring JT, Neumann F, Altmann B, Achenbach M, Reichrath J, Ziepert M, et al. Vitamin d deficiency impairs rituximab-mediated cellular cytotoxicity and outcome of patients with diffuse large B-cell lymphoma treated with but not without rituximab. *J Clin Oncol.* 2014; 32: 3242-3248.

31. Chiba A, Raman R, Thomas A, Lamy PJ, Viala M, Pouderoux S, et al. Serum vitamin D levels affect pathologic complete response in patients undergoing neoadjuvant systemic therapy for operable breast cancer. *Clin Breast Cancer*. 2018; 18: 144-149.
32. Li M, Chen P, Li J, Chu R, Xie D, Wang H. Review: the impacts of circulating 25-hydroxyvitamin D levels on cancer patient outcomes: A systematic review and meta-analysis. *J Clin Endocrinol Metab*. 2014; 99: 2327-2336.
33. Fink M. Vitamin D deficiency is a cofactor of chemotherapy-induced mucocutaneous toxicity and dysgeusia. *J Clin Oncol*. 2011; 29: e81-e82.
34. Ogunleye AA, Xue F, Michels KB. Green tea consumption and breast cancer risk or recurrence: A meta-analysis. *Breast Cancer Res Treat*. 2010; 119: 477-484.
35. Chi F, Wu R, Zeng YC, Xing R, Liu Y, Xu ZG. Post-diagnosis soy food intake and breast cancer survival: A meta-analysis of cohort studies. *Asian Pac J Cancer Prev*. 2013; 14: 2407-2412.
36. Dong JY, Qin LQ. Soy isoflavones consumption and risk of breast cancer incidence or recurrence: A meta-analysis of prospective studies. *Breast Cancer Res Treat*. 2011; 125: 315-323.
37. Fritz H, Seely D, Flower G, Skidmore B, Fernandes R, Vadeboncoeur S, et al. Soy, red clover, and isoflavones and breast cancer: A systematic review. *PLoS One*. 2013; 8: e81968.
38. Cui Y, Shu XO, Gao YT, Cai H, Tao MH, Zheng W. Association of ginseng use with survival and quality of life among breast cancer patients. *Am J Epidemiol*. 2006; 163: 645-663.
39. Calado A, Neves PM, Santos T, Ravasco P. The effect of flaxseed in breast cancer: A literature review. *Front Nutr*. 2018; 5: 4.



Enjoy *OBM Integrative and Complementary Medicine* by:

1. [Submitting a manuscript](#)
2. [Joining in volunteer reviewer bank](#)
3. [Joining Editorial Board](#)
4. [Guest editing a special issue](#)

For more details, please visit:

<http://www.lidsen.com/journals/icm>