

TREATING SIDE EFFECTS OF CANCER TREATMENTS WITH COMPLEMENTARY MEDICINE

WHAT ARE THE SIDE EFFECTS OF BREAST CANCER TREATMENTS

The side effects you experience will depend on the type, location, and extent of your breast cancer and the treatment you receive. Side effects are very individual and may not be the same for two people with similar diagnoses that are receiving the same treatment. They may even vary for the same individual from one treatment session to the next. Some of these side effects may show up immediately and go away when treatment stops and some may continue after you are finished with treatment. Some may show up long after treatment has stopped.

CHEMOTHERAPY – How to make it more effective at killing cancer cells with fewer side effects

FASTING: A study of 10 elderly cancer patients voluntarily underwent short-term fasting before and/or after chemotherapy. The patients reported far fewer side-effects. In 2012 the same team produced further research (Science Translational Medicine; 7 March 2012) showing that fasting makes cancer cells more sensitive to chemotherapy. Fasting actually stopped cancer cells producing protective proteins from their mutated genes, while healthy cells made more protective proteins. As a result the healthy cells stop dividing and are less attacked by the chemotherapy resulting in lowered side-effects. In some combinations of fasting and chemotherapy the tumors actually disappeared. **So fasting can improve effectiveness. And reduce the side-effects of chemotherapy.**

PROLONGED NIGHTLY FASTING CUTS RISK FOR BREAST CANCER RETURN

Not eating in the evening and at night could reduce the risk for recurrence of breast cancer, according to a new study published online March 31 in *JAMA Oncology*. University of California, San Diego investigators found that breast cancer survivors, who reported consistently not eating for 13 hours or more (overnight), had a **36% lower risk of having a breast cancer recurrence** and **21% lower risk of dying from their breast cancer**.

The Study:

- “Women’s Healthy Eating and Living” (WHEL) study
- 2413 women with early stage breast cancer
- No patients had diabetes at enrollment
- Ages 27 to 70 years at diagnosis
- Nightly fasting duration was estimated from 24-hour dietary recalls collected at baseline, year 1, and year 4
- Baseline sleep duration was self-reported
- Archived blood samples were used to assess concentrations of hemoglobin A1c (marker of blood sugar levels over 3 months) and C-reactive protein (marker for systemic inflammation)

The Study Results:

- After a 7.3 year follow-up period, there was a:
 - 36% higher risk of breast cancer recurrence in those who did not fast for greater than 13 hours, at night
 - 21% higher risk of dying from breast cancer (a trend, albeit not statistically significant) in those who did not fast for greater than 13 hours, at night
 - 22% higher risk of death from any cause (a trend, albeit not statistically significant) in those who did not fast for greater than 13 hours, at night

METFORMIN HAS EFFECTS ON BREAST CANCER SIMILAR TO FASTING: [Metformin](#), a drug used to treat [type 2 diabetes](#), has been shown to reduce breast cancer risk and recurrence. Metformin appears to mimic some aspects of caloric restriction in the body. In fact, metformin has been shown to enhance the effectiveness of Adriamycin chemotherapy.

LONGER PERIOD OF FASTING: The work of Joseph Longo: Getting your average patient to fast is no easy chore. In the last few years Longo has developed a program for patients to use that makes the process easier. He provides boxed kits to his patients that contain daily rations of teas, nut bars, vegetable broth and selected nutrients that all together provide minimum calories but create a sense of satiety, which makes this short-term starvation process easier. Trademarked as Chemolieve™, Longo’s program covers a period of 4 continuous days and is administered under physician supervision during every cycle of chemotherapy. No other food except water is consumed during those 4 days. It is started three days prior to chemotherapy (day 4). On day 5 the patient transitions back to a normal diet. On day 6 the patient kit provides some additional nutrients. It seems that much thought, testing and calculation have gone into designing these ‘foods’. These design factors remain confidential or proprietary. On day 1 the diet is reduced calories but high fat. For the next three days it is very low calorie (<300 kcal).

It has become clear that cancers need specific nutrients to encourage their growth, and without these nutrients many cancers wither. Glucose is clearly one such nutrient, although there undoubtedly are others. Fasting reduces plasma glucose, IGF-1 and insulin levels and produces a state of ketosis which clearly has health benefits, one of those being to deprive cancer cells of nutrients. Cutting protein consumption has further anti-inflammatory and cancer-driving mechanisms. That fasting may help chemotherapy or radiotherapy success is a different, and probably confusing point.

Clinical trials are being done at USC's Norris Comprehensive Cancer Center to test the effect of periodic fasting. In one trial, cancer patients are divided into groups and follow various fasting regimens. Some patients, for example, fast for two days before chemo, and one day after, while others fast for four days but are allowed a few hundred calories a day of soups and other low-carb foods.

THE BEST WAY TO MANAGE FATIGUE FROM CHEMOTHERAPY AND RADIATION: The best remedy for fatigue is exercise. This has been shown in research studies. It is really important to make sure there are no underlying medical issues going on that may be adding to the fatigue, such as anemia, iron deficiency or low thyroid function. Most often there are not any of these causes, and it is just "cancer-related fatigue" from the treatment. The main difference between cancer-related fatigue and just being tired is that you DO NOT feel better after getting more rest. Do a minimum of three hours of exercise a week, and if you can, five to six hours a week. Almost any type of exercise will help. Yoga to be particularly useful because it also tackles issues like concentration and stretching. You can even do yoga at home with a video or DVD if getting to a class is a problem or not desired

CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY (CIPN) effects the lives of up to 40% of cancer patients who receive chemotherapy. Nerves have a covering (myelin) that protects them from damage and ensures that they work properly. One of the proposed theories is that CIPN can develop as a result of damage to the myelin covering through drug-induced free radical production in and around the nerves.

FROZEN GLOVES AND SOCKS DURING TREATMENT: Adding frozen gloves and socks during treatment, objectively assessed CIPN was reduced from 81 to 28 percent in the hands and 64 to 25% in the feet of patients with breast cancer. Results from this study of 36 individuals were presented in a poster session during the 2016 Annual Meeting of the American Society of Clinical Oncology (ASCO), a gathering of 30,000 oncology professionals in Chicago.

The gloves and socks are stored inside a freezer set at -22 degrees Fahrenheit for more than three hours, typically overnight. A previous study by Ishiguro, though, showed that degree of freezing does not alter the efficacy of the gloves in preventing chemotherapy-induced nail toxicity in patients with breast cancer.

THE USE OF VITAMIN E TO TREAT PERIPHERAL NEUROPATHY CAUSED BY CHEMOTHERAPY: This was tested and found effective in a 2010 study in "Neurology." The chemotherapy agent cisplatin, which has a high incidence of severe peripheral neuropathy at certain dose levels, was used in the study. Patients on cisplatin therapy were given oral vitamin E, in the alpha-tocopherol form, before starting chemotherapy and for three months after. The incidence and severity of neuropathy was found to be significantly lower in the vitamin E group than in the control group that received a placebo. The researchers concluded that, due to the effectiveness of vitamin E at protecting patients from neurotoxic effects of cisplatin in this study, vitamin E should be included in the treatment protocol of patients receiving this drug.

MOUTH SORES- Many chemotherapy agents cause the lining of the mouth and digestive tract to slough off and become raw and tender. Even in use in hospital settings today is L-Glutamine, an amino acid that helps repair the lining. With mouth sores I recommend a gargle and for all patients I recommend oral capsules or powder mixed into water or juice.

Oral glutamine reduces the duration and severity of stomatitis after cytotoxic cancer chemotherapy. Studies show that the duration of mouth pain was 4.5 days less in chemotherapy courses in which glutamine supplementation was compared with placebo (Wilcoxon's signed rank test, P=0.0005). The severity of oral pain also was reduced significantly when glutamine was provided with chemotherapy (the amount of days mucositis restricted oral intake [$>$ or $=$ Grade 2; Modified Eastern Cooperative Oncology Group grading system] was 4 days less with glutamine compared with placebo; Wilcoxon's signed rank test, P=0.002).

HAND-FOOT SYNDROME (Palmar-Plantar Erythrodysesthesia or PPE) is the result of chemotherapy or biologic drugs leaking into the capillaries of your outer extremities, like the palms of your hands or the soles of your feet. It can cause irritating symptoms like redness, pain and tenderness. Dryness and cracking may occur in areas, in addition to a numbing or tingling sensation.

Prevention: Avoid anything that causes heat or friction near these areas for at least a week after exposure to cancer-treatment drugs. Stop activities like prolonged baths or exposure to warm water, vigorous

exercise or unnecessary walking, everyday chores (like washing dishes, cooking, gardening), and anything that rubs the surface of the skin (like using Band-Aids). This is the perfect time to start moisturizing hands and feet to help prevent and ease the symptoms. Vitamin B6 may help reduce the intensity of hand-foot syndrome in patients. Expose your hands and feet to cool running water or put them in an ice pack for 15 to 20 minutes per day.

If hand-foot syndrome has already developed, try to make the area colder by using ice packs periodically. Soaking the affected areas in lukewarm water and Epsom salts helps alleviate pain. Applying a thick, toxin-free gel that has been cooled in the refrigerator may also bring relief.

NATURAL HENNA PASTE- HOW TO USE HENNA TO TREAT HFS/PPE:

MAKE IT: 1/4 cup water ---- 1/8 cup henna powder --- A squirt of lemon juice

Bring the water to a boil, then turn off the heat. Add the henna slowly and stir until it is like cream of tomato soup. You will probably use about 1/8th of a cup. Add a squirt of lemon juice. Let it cool. *(If you already have cracks, skip the lemon juice. It will sting.)*

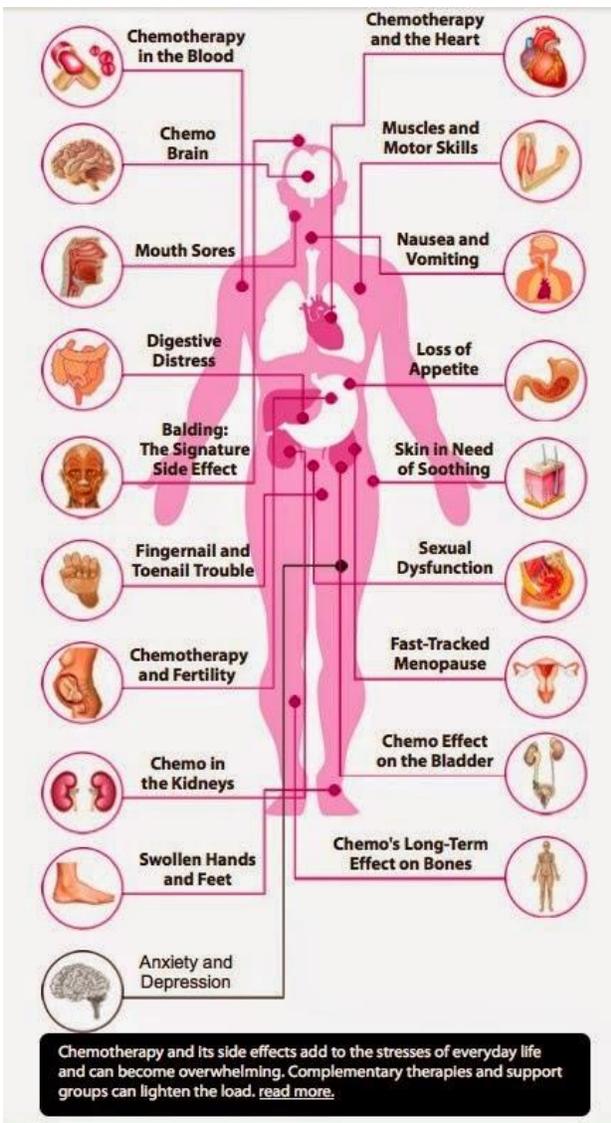
APPLY IT: Cover a work area with plastic bags or an old towel (henna stains). Paint a thin layer on your bare feet and hands. I use a foam paint brush to apply it.

LET IT DRY: It takes up to 15 minutes to dry and then let it sit for at least an hour. You can rinse it off or put socks on and leave it for your next shower.

WHAT TO GET: Jamili summer crop (most current year) henna powder has been found effective in treating HFS/PPE. You might find that at an Indian grocery store or buy it: www.castleart.com (Green Bay) (920) 430-8826. (Buy pure henna powder. Don't buy: henna for hair; anything called "Black" or "neutral" henna; tattoo henna; pastes or pens.) * *Henna does not help with neuropathy.*

The Side Effects of Chemotherapy on the Body

<http://2.bp.blogspot.com/-mz1I2-5kNeA/U5yP4UpHArI/AAAAAAAAA5M/8ggXkEy9i6Q/s1600/Chemo+Graphic.jpg>



List of clinical studies conducted using nutraceuticals and dietary antioxidants in patients suffering from chemotherapy induced peripheral neuropathy

<http://www.sciencedirect.com/science/article/pii/S2213231714000214>

Model used	Treatment schedule	Parameters evaluated	Results observed
Paclitaxel/ cisplatin induced neuropathy in patients	N-acetyl carnitine oral (1 g t.i.d for 8 consecutive weeks)	Neurological examination, total neuropathic score (TNS) and quantitative sensory testing were measured.	Improvement in TNS, sensory symptoms and neurophysiology were observed in N-acetyl carnitine treated patients.
Cisplatin/ docetaxel induced neuropathy in patients	α -lipoic acid 600 mg i.v. once a week for 3–5 weeks followed by 1800 mg t.d p.o upto 6 months	Neurological examinations and WHO toxicity score assessment were evaluated	Improvement in neurological symptoms after treatment with α -lipoic acid.
Cisplatin induced neurotoxicity in women.	Glutathione (3 mg/m ²) i.v every 3 weeks for six courses.	A questionnaire on the subjective symptoms of peripheral neuropathy and quality of life was assessed.	Decreased incidence of CINP in glutathione treated arm.
Oxaliplatin induced neuropathy in patients	GSH (1500 mg/m ² over a 15-min infusion period before oxaliplatin)	Electrophysiological parameters and assessment of neurological symptoms	Increased sural sensory nerve conduction velocity observed in GSH treated patients
Paclitaxel/ docetaxel induced neuropathy in patients	Melatonin 21 mg daily at bedtime	Neurological examinations, toxicity assessment as per NCI-CTC 3.0 scale and FACT-Taxane quality of life questionnaire were evaluated.	FACT-Taxane quality of life end of study score was 137. Reduced incidence of neuropathy was observed in melatonin treated patients.
Oxaliplatin induced neuropathy in patients	Oral N-acetyl cysteine (1200 mg) (arm A) or placebo (arm B).	Electrophysiological parameters and assessment of neurological symptoms.	Improved NCV (nerve conduction velocity), CMAP (compound muscle action potential) and decreased SAP (sensory amplitude potential) were observed after N-acetyl cysteine treatment.
Paclitaxel induced peripheral neuropathy in patients	ω -3 fatty acids 640 mg t.i.d orally/placebo	Electrophysiological parameters and assessment of neurological symptoms.	Reduced total sensory neuropathy score, improved NCV after treatment with ω -3 fatty acids.
Oxaliplatin induced neuropathy in patients	Glutamine (15 g twice a day orally for seven consecutive days every 2 weeks starting on the day of oxaliplatin infusion)	Electrophysiological parameters and neurological symptoms were assessed	Lower percentage of grade 1–2 peripheral neuropathy after 2 cycles and lower incidence of grade 3, 4 neuropathy after 4–6 cycles of glutamine administration was observed.
Taxanes, platinum compounds and combination drug induced neuropathy in patients.	Twice daily dosing of vitamin E (400 mg)/ placebo.	The outcome was evaluated using the common terminology criteria for adverse events (CTCAE v 3.0) and A questionnaire on the subjective symptoms of peripheral neuropathy.	Significant difference in the incidence of sensory neuropathy between the two arms was not observed. Vitamin E did not appear to reduce the incidence of sensory neuropathy.
Cisplatin induced neurotoxicity in patients	vitamin E (300/day mg/placebo)	The outcome was evaluated by measuring total neuropathic score (TNS) and quantitative sensory testing	Vitamin E reduced the incidence of sensory neuropathy

TREATING SIDE EFFECTS OF CANCER TREATMENTS WITH COMPLEMENTARY MEDICINE: PART 2

Precaution: It is essential to inform your doctors if you opt to take dietary supplements. Most are quite safe and can provide you with significant benefit as you navigate conventional treatment, but negative interactions are possible. Your doctor may disagree with your use of these therapies, but she must know about them in order to provide you with safe care.

NAUSEA/VOMITING:

-GINGER: Fresh ginger root tea is most effective (recipe below), but candied ginger or natural ginger ale can be helpful as well.

To make Fresh Ginger Root Tea: Add ¼ cup of grated or coarsely chopped fresh ginger root to 4 cups of water. Bring mixture to a gentle boil for 3 minutes. Turn off heat source and allow to steep for at least 5 minutes. Strain and serve. Add honey to taste.

-YARROW TEA: Add 1 Tbsp dried yarrow flowers in 8 oz. of hot water. Allow to steep for 20 minutes. Sip 1 tsp as needed every 20 minutes. Check local health food stores or www.mountainroseherbs.com

-ACUPUNCTURE: A 2013 systematic review of acupuncture in cancer care published in the Journal of Clinical Oncology found it to be an appropriate adjunctive therapy for chemo-induced nausea/vomiting. Acupuncture is most helpful if sessions are the day before and after chemotherapy treatments. Consider community acupuncture as a more affordable option.

-HOMEOPATHY: Remedies are non-toxic, have no side effects and do not interact with any medications or supplements. They either work or do not, but they will not harm. Note that remedies should be taken at least 10 minutes before/after food or drink (except water).

Nux Vomica Protocol (Boiron brand is recommended)

- 6C: Dissolve 5 granules under the tongue 5 days before chemotherapy treatment
- 9C: Dissolve 5 granules under the tongue 4 days before chemotherapy treatment
- 12C: Dissolve 5 granules under the tongue 3 days before chemotherapy treatment
- 30C: Dissolve 5 granules under the tongue 2 days before chemotherapy treatment
- 30C: Dissolve 5 granules under the tongue 1 day before chemotherapy treatment
- 200CK: Dissolve 5 granules under the tongue every 15 minutes until relief sets in for nausea post chemotherapy treatment

MOUTH SORES

-SLIPPERY ELM: A mucilaginous herb indicated for soothing irritated and inflamed mucous membranes. It has a thick, ropy texture that is great for coating and healing raw sores in the mouth and entire digestive tract. Slippery elm powder can be purchased at most health food stores. A slippery elm gruel is made by adding 1 Tbsp of slipper elm powder to warm water to form a thin paste. Honey can be added to taste. Take twice daily. If desired, the gruel can be mixed with yogurt or applesauce to increase palatability. Powdered L-glutamine can also be added for greater healing effect.

TASTE CHANGES AND APPETITE

Just about half of all patients receiving chemotherapy will experience taste changes. The mechanism is uncertain, but it is thought to result from damage to cells in the mouth responsible for taste. In addition, decreased sense of taste and loss of appetite can result merely from association with chemotherapy-induced nausea and vomiting. Taste changes can occur during therapy and last for hour to days to months after treatment.

-ZINC: Consider 30-45mg daily. Studies have shown conflicting results on the efficacy of zinc supplementation in preventing and treating taste changes induced by chemotherapy or radiation. A randomized placebo controlled trial published in the Journal of Research in Medical Sciences concluded that zinc supplementation can prevent radiation-induced taste alterations (J Res Med Sci. 2013 Feb; 18(2): 123-126.) while another 2012 study (J Pain Palliat Care Pharmacother. 2012 Jun; 26(2): 111-114.) concluded that it did not provide significant benefit. Overall studies suggest that while zinc may not be preventative, it may reduce symptom severity and improve recovery of response to taste stimuli.

CONSTIPATION/DIARRHEA

-Chemotherapy can cause constipation and/or diarrhea due to its damage of rapidly dividing cells that line the gastrointestinal tract. Alterations in diet due to nausea/vomiting and taste changes associated with chemotherapy can also negatively affect bowel habits.

-HYDRATION: Drinking enough water is important to prevent and treat constipation. Drinking ½ your body weight in ounces of water daily is recommended.

-EXERCISE: Physical activity can prevent constipation by encouraging movement of stool through the intestines. Aim for 30 minutes daily, as tolerated.

-FIBER: Aim to consume 25-30 grams of fiber daily. Foods rich in fiber include whole grains (e.g., brown rice, quinoa, oatmeal, corn, whole wheat), fruits, vegetables, nuts, seeds and legumes.

Psyllium: 1 Tbsp in a 10-12 oz glass of water is a rich source of soluble fiber that can help with both constipation and diarrhea.

-L-GLUTAMINE: Because l-glutamine can help repair a damaged gastrointestinal lining, it has been suggested that it could be a useful treatment for chemotherapy-induced diarrhea. A 2012 metaanalysis (Asia Pac J Clin Nutr. 2012;21(3):380-5.) concluded that l-glutamine had no impact on diarrhea severity but significantly reduced its duration.

SKIN IRRITATION

-Severe skin irritation is common due to localized radiation treatment or Hand Foot Syndrome (also called Palmar-Plantar Erythrodysesthesia or PPE) caused by chemotherapy or biologic drug treatments. Several natural therapies can help relieve pain of damaged skin tissue and speed healing.

-CALENDULA: Extracted from the flower of the marigold plant, calendula contains large amounts of bioflavonoids (antioxidants) that can protect the body against free-radical damage from radiation. It has potent skin healing properties. As well as anti-inflammatory, antiviral, and antibacterial effects. It can be applied as an ointment or oil. Select a product with calendula as the main ingredient with 2-5g of calendula per 100g of ointment. Consider Calendula Intensive Skin Recovery or Calendula Body Cream (both by Weleda).

-EMU OIL: Lisa Alschuler, ND (The Definitive Guide to Cancer) recommends the application of emu oil to soothe inflamed and cracked skin. A variety of anecdotal evidence support the topical antiinflammatory properties of emu oil. It has been shown to reduce pain and swelling and is bacteriostatic as well.

LYMPHEDEMA

Some breast cancer patients may experience surgical removal of lymph nodes. This can be due to spread of cancer or due to damage by radiation therapy. Because lymph nodes filter and remove fluid from the body, when they are removed, the fluid can build up in the affected limb and cause painful swelling. Lymphedema is most commonly seen in the arms of patients who have had lymph nodes removed from their armpit region but can occur in the breast and chest wall as well. The condition can be painful, restricts mobility and also can result in serious infections.

-ACUPUNCTURE: A 2013 pilot study at Memorial Sloan Kettering (Cancer. 2013 Jul 1;119(13):2455-61) suggests that acupuncture can be effective in reducing pain and swelling from lymphedema in post-surgical breast cancer patients. In this study patients received two acupuncture sessions per week for 4 weeks.

-LYMPHATIC MASSAGE (also called manual lymph drainage): A Cochrane review of six clinical trials determined manual lymph drainage to be safe, well-tolerated and resulted in reduced swelling when added to compression bandaging.