



## Even in our medically advanced age, cancer remains a killer. Lynda Wharton looks at the different types of oestrogen and the effects they can have on breast health

This year, around 2300 New Zealand women will learn they have breast cancer. Of these, around 70 percent will have a type of cancer fed and stimulated by oestrogen, known as oestrogen receptor positive breast cancer. For these women, there lies ahead a treatment decision regarding the long-term use of powerful pharmaceutical drugs designed to reduce the risk of a breast cancer recurrence.

Pre-menopausal women are offered a SERM drug, usually Tamoxifen or Raloxifen, to reduce the ability of oestrogen to bind with and stimulate breast cells. Post-menopausal women are offered aromatase inhibitors, such as Arimidex, to lower their circulating

women choose to stay on the drugs, but still want to know what changes they can make to lower their chance of renewed illness.

Contrary to general belief, oestrogen is actually three different hormones. Before menopause, it is produced in the ovaries. After menopause, the ovaries wind down and most oestrogen is made in the fat cells with the help of adrenal hormones. At this stage of life, it is also made in much smaller amounts. Oestrogen is vital for good health, but too much of the wrong kind of oestrogen, or the wrong kind of oestrogen metabolites (produced when the body breaks down the hormone), can elevate your risk of breast cancer.

A woman's body is constantly

and cannot stimulate oestrogen-sensitive cells to reproduce. Two other metabolites – 16 OH and 4 OH – are potentially more troublesome, as they can cause oestrogen-sensitive breast cancer cells to proliferate.

Of these three metabolites, it is 16 OH that is produced in the greatest amount and poses the most extreme risk in terms of breast cancer. Studies show that the greater the number of 16 OH metabolites compared to 2 OH metabolites in your body, the greater your risk of oestrogen-sensitive breast cancer.

So, what is the point of this biochemistry lesson? Well, if you can reduce your 16 OH metabolites and increase your 2 OH metabolites, there's a chance of naturally protecting your breast from the most damaging type of oestrogen stimulation. How do you do this? Start by making the right choices in the supermarket and at the dinner table.

If you haven't already done so, elevate

One of the most important self-help steps that any breast cancer survivor can take to enhance her likelihood of long-term survival is the maintenance of a healthy bodyweight through regular exercise



oestrogen levels. Both types of drug have a number of unpleasant and potentially serious side-effects. Some women feel so unwell on the medication that they decide to stop taking it and make lifestyle choices to reduce their breast cancer risk. Other

producing, breaking down and then excreting oestrogen. As part of this process, the hormone is reduced by the liver into one or more of three different types of metabolites. One of these, 2 OH, is 'non-toxic' to breast cells; it is unable to work as an active oestrogen

fruits and vegetables to the status of number one dietary staple. Not only are they loaded with breast-protective antioxidants and phytoestrogens, but they also boost breast health in other ways. Their high dietary fibre content helps them bind with the oestrogen

metabolites in your gut and pass them out of the body, preventing them from being recycled from the gut to the liver. This reduces your total oestrogen exposure. The same fibre also helps to keep friendly gut bacteria populations high, again aiding in the breakdown and excretion of the hormone.

And there's another reason why vegetarians have a lower risk of breast cancer than meat eaters do. Xeno-oestrogens – such as pesticide and herbicide residues – are stored in our fat tissue. When we eat meat, we ingest the same agrochemicals and antibiotics that were taken in by the animal. So, breast-protective step number two is to change to a vegetarian diet or to greatly reduce your meat intake and choose only organic meats.

While all fruits and vegetables are beneficial for your breast health, the most powerful are the cruciferous vegetables: broccoli, cabbage, cauliflower, bok choy and Brussels sprouts. These are rich in the phytonutrient I3C (indole 3 carbinol). This, and one of its metabolites – DIM – help to decrease the incidence of potentially troublesome 16 OH oestrogen metabolites, and increase the production of protective 2 OH metabolites. As a bonus effect, I3C and DIM both block the ability of potent carcinogenic chemicals, such as dioxin, to bind with and stimulate breast cells. Both I3C and DIM are available in supplemental form.

Phytoestrogens are oestrogen-like compounds found in fruits and vegetables, grains, legumes and beans. Once ingested, they bind with the oestrogen receptors on breast

cells, blocking the ability of our own stronger oestrogens to stimulate the same cells. The three main classes of phytoestrogens are: isoflavones, found in legumes, including soy; lignans, found in grains, legumes, vegetables and seeds; and coumestans, found in bean sprouts.

While the jury is still out regarding the safety and efficacy of soy isoflavones for women who have had oestrogen-sensitive breast cancer, lignans from flaxseed certainly have much to offer. Flaxseed is an especially powerful breast protector, binding with breast cells to prevent oestrogen stimulation, and with oestrogen metabolites in the gut to enhance their excretion. Add 10g to 25g of ground flax seed to your daily diet and reap the breast-protective rewards.

Flavones are a group of powerful antioxidants found in a wide range of fruits and vegetables. One of the most powerful natural aromatase inhibitors is the flavone apigenin, which is found in parsley, thyme, peppermint, chamomile, lemon balm and celery. Human studies have shown that more than half of all known flavones can inhibit aromatase activity, but apigenin is particularly helpful. (See part one of this story, in issue 35, for more information on aromatase inhibitors).

Red grapes contain the flavone resveratrol, which is thought to account for most of the health benefits of red wine. While alcohol consumption can in itself increase a woman's risk of breast cancer, generous consumption of red grapes and grape juice offers the health benefits of this dietary

helper. In fact, several animal and test tube studies have shown that resveratrol exerts a number of powerful anti-cancer effects against both oestrogen receptor-positive and negative breast cancers.

A number of nutritional supplements also work as natural aromatase inhibitors. Top of the list come the already mentioned broccoli extracts I3C and DIM. Tocotrienols (a type of natural vitamin E) have also been shown to inhibit the growth of oestrogen-positive breast cancer cells, in culture, by up to 50% – equaling the inhibitor effect demonstrated by Tamoxifen in culture.

The antioxidant vitamin CoQ10 has also demonstrated exciting breast-protective properties. And rat studies have shown that the addition of CoQ10 to Tamoxifen therapy enhances the oestrogen-blocking effect of the drug.

The powerfully antioxidant compound curcumin is the yellow pigment found in the Indian spice, turmeric. Curcumin also fills the oestrogen receptors on breast cells, blocking the ability of oestrogen and xeno-oestrogens to stimulate abnormal growth. In addition, it works to inhibit the formation of the new blood vessels vital for the growth of cancerous tumours.

Calcium d-glucarate is found in a wide range of fruits and vegetables, including apples, grapes, grapefruit, bean sprouts, lettuce and cruciferous vegetables. It is also available in supplemental form. While there is little human data available, animal studies suggest the mineral may have a strong breast-protective effect. Rats

specifically bred to develop breast cancer showed a 70% reduction in the tumour incidence when fed this supplement.

Over and above all this, one of the most important self-help steps that any breast cancer survivor can take to enhance her likelihood of long-term survival is the maintenance

of a healthy bodyweight through regular exercise. In post-menopausal women especially, excessive fat tissue leads to higher circulating oestrogen levels. And exercise also helps to regulate the gut and ensures daily bowel motions, which are vital for the excretion of oestrogen metabolites. «

### Here are some important steps that will help safeguard your breast health:

- Maintain a healthy bodyweight and exercise aerobically for at least four hours a week.
- Eat a vegetarian diet, taking in as many organic products as possible.
- Drink six glasses of Japanese green tea daily.
- Eat a generous serving of cruciferous vegetables daily
- Eat a high-fibre diet to maintain regular bowel motions and healthy gut flora.
- Include a wide range of dietary phytoestrogens in your diet, from fruits, vegetables, legumes, nuts and seeds.
- Include 10g – 25g of flax seed in your daily diet.
- Avoid alcohol.
- Eat a minimum of five and preferably up to nine servings of fruits and vegetables daily.
- Minimise your intake of saturated (animal) fats, trans fats (from hydrogenated oil) and omega-6 fats (from polyunsaturated vegetable oils). Increase omega-3 and omega-9 fats from oily fish, avocado, nuts and seeds, flax oil, and olive and rice bran oils.



For more in-depth information on breast cancer prevention, and many other aspects of female health, see Lynda Wharton's new book *Wellbeing – an essential guide to vibrant good health for women*, published by Harper