BREAST CANCER RISK REDUCTION STRATEGIES

SHARON GUNSHER, MD

OCTOBER 8, 2021

WHO IS HIGH RISK?

- Previous Breast Cancer
- Biopsy proven high risk lesion
  - DCIS, LCIS, ADH, ALH
- Gene Mutation
  - BRCA1, BRCA2, TP53, PTEN
  - PALB2, CDH1, CHEK2
- Family history
- Dense breast
- Thoracic radiation prior to age 30

WHO IS HIGH RISK?

Exogenous estrogen

- OCP - minimal increase in risk
- Fertility drugs – minimal to no increase in risk
- Hormone replacement therapy after menopause
  - combination therapy increases risk
  - estrogen alone – minimal to no increase

OTHER RISK FACTORS

- Older age
- Nulliparity
- Dense breast tissue
- Family history
- Obesity
- Alcohol

WHAT CAN BE DONE TO DECREASE RISK

- Chemoprevention
- Surgical intervention
- Lifestyle modifications

CHEMOPREVENTION

- Selective estrogen receptor modulators
  - Tamoxifen
  - Raloxifene
- Aromatase inhibitor
  - Arimidex
  - Exemestane

TAMOXIFEN

- Can decrease risk by 50%
- Safe in both premenopausal and postmenopausal women
- Risks
  - Thromboembolic complications – CVA, MI, DVT
  - Endometrial cancer
  - Cataracts

RALOXIFENE

- Decrease in risk similar to Tamoxifen
- Only in postmenopausal women
- Good for bone density
- Lower risk of endometrial cancer

AROMATASE INHIBITORS

- Anastrozole
- Exemestane
- Only for use in postmenopausal women
- Both cause decreased bone density

SURGICAL INTERVENTIONS

- Bilateral oophorectomy
  - Does decrease risk of breast cancer in women with BRCA mutations – up to 53%
  - No data that it decreases risk of breast cancer in other high risk populations
- Risk reducing mastectomy
  - Risk of second primary breast cancer in 10 years 1.4 % ; down from 4-5% in 1980's
  - is 30% in women with BRCA mutation
- Does not eliminate risk of breast cancer
- Does decrease risk by 95%

CONTRALATERAL PROPHYLACTIC MASTECTOMY

- Increased from 4% in 2002 to 15% currently
- No benefit in terms of breast cancer specific survival or long term survival

Survival benefit from procedure only in women with BRCA mutations

Double the complication rate

MASTECTOMY COMPLICATIONS

- Seroma
- Wound infection
- Skin flap necrosis
- Postmastectomy pain syndrome
- Mobility limitations
- Reconstruction complications

THE AMERICAN SOCIETY OF BREAST SURGEONS (ASBRS) ENDORSES THE AMERICAN BOARD OF INTERNAL MEDICINE'S CHOOSING WISELY CAMPAIGN STATEMENT: "DON'T ROUTINELY PERFORM A DOUBLE MASTECTOMY IN PATIENTS WHO HAVE A SINGLE BREAST WITH CANCER

Breast Cancer Risk Reduction with Diet and Nutrition

MEGAN RYDER, RD, CSO, LD

The 3 Most Important Modifiable Risk Factors

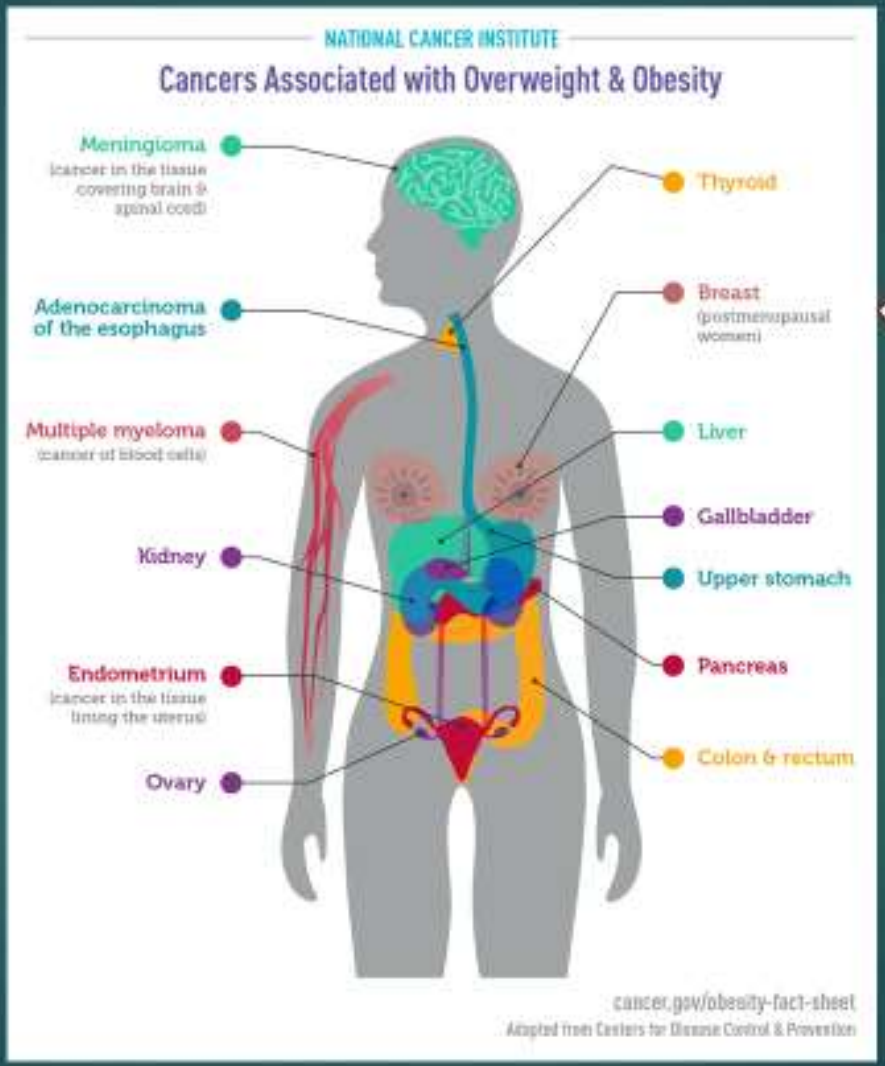
1) Aim for a healthy body weight
2) Limit or avoid alcohol
3) Be physically active

dietandcancerreport.org

Healthy Body Weight and Breast Cancer

- Strong/convincing evidence that excess weight and weight gain as an adult are strongly linked with increased risk of postmenopausal breast cancer.
- Strong/probable evidence that excess weight may *reduce* the risk of premenopausal breast cancer.
- Indications of links between a healthy body weight and better survival after premenopausal and postmenopausal breast cancer.

- What is the connection? Excess fat tissue may increase estrogen levels, insulin resistance, and chronic low grade inflammation.


NATIONAL CANCER INSTITUTE
Cancers Associated with Overweight & Obesity
Meningioma
(cancer in the tissue covering brain & spinal cord)
Adenocarcinoma of the esophagus
Multiple myeloma
(cancer of blood cells)
Kidney
Endometrium
(cancer in the tissue lining the uterus)
Ovary
Thyroid
Breast
(postmenopausal women)
Liver
Gallbladder
Upper stomach
Pancreas
Colon & rectum
cancer.gov/obesity-fact-sheet
Adapted from Centers for Disease Control & Prevention

Healthy Lifestyle for a Healthy Weight

- Create a lifestyle change, not a weight loss diet.
  - Choose an "Abundance Model" vs. a "Deprivation Model"
- Be active doing what you love & limit sedentary time.
- Practice stress management & get adequate sleep.
- Set reasonable goals and timelines. 1 goal/week= lifetime of healthy habits.
- Surround yourself with support.
- Remember- Even a 5% weight loss can provide health benefits!

  Example: 180 pounds x .05= 9 pounds ÷ 1.5 pounds/week = 6 weeks to goal

Follow a Healthy Eating Pattern

- Eat a plant-based diet
  - → Enjoy lots of vegetables, fruits, herbs and spices
  - → Eat fiber rich beans/peas, whole grains vs refined, nuts/seeds
- Enjoy water, teas, seltzers but limit sugar sweetened drinks
- Eat more plant based proteins and fish but limit red and processed meats
- Choose healthy fats
  - → choose mostly plant fats such as olive oil, avocado, nuts, seeds, flax, and fatty fish but limit butter, full fat dairy, fatty meat, margarine

Limit or Avoid Alcohol

- There is strong evidence that alcohol increases the risk of both premenopausal and postmenopausal breast cancers.
- What's the connection? Increases estrogen; Irritant; Converts to acetaldehyde; Nutrient absorption decreased
- Dose response with increased consumption = increased risk
- American Cancer Society recommends:

  Best not to drink alcohol. Those who do drink alcohol…

  - Women: no more than 1 drink per day
  - Men: no more than 2 drinks per day

Thank you

EXERCISE TO REDUCE CANCER RISK

Austri Monette, PT, DPT, ATC, CLT

Barbara Baker, PT, MS, CLT

GENERAL EXERCISE BENEFITS

- Lowers the risks of many things aside from cancer
  - Ex: cardiovascular disease
- Decreases the risk of osteoporosis
- Improves insulin resistance
- Has a positive effect on depression and anxiety
- Preserves joint and muscle strength and flexibility

USUAL TYPES OF EXERCISE

- Aerobic: walking, cycling, swimming, tennis, dancing
  - Can be done most days, if not every day
- Strength training with some form of resistance: free weights, machines, body weight
  - Usually two to three times a week
  - Muscles need time between workouts to recover
- Must pay attention to hydration and nutrition!!

- Studies show that physical activity is among modifiable risk factors for cancer
- Physical activity is strongly associated with a decreased risk of breast cancer, colon cancer, endometrial cancer, prostate cancer and lung cancer
- Breast cancer risk is reduced by 25% in active women when compared to sedentary women
- Regular physical activity has been shown to prevent breast cancer specifically in post-menopausal women

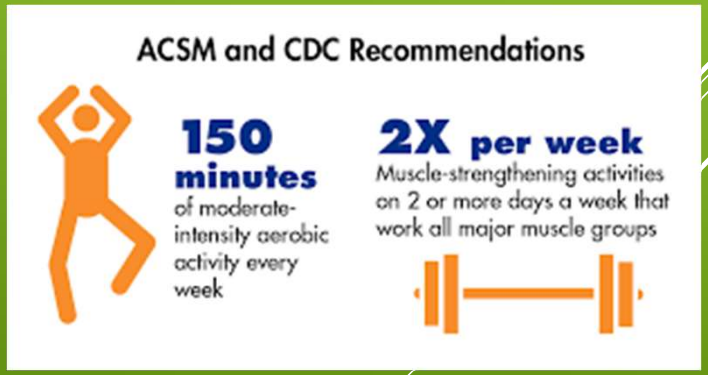
BE PHYSICALLY ACTIVE!

HOW MUCH IS ENOUGH?

- ACSM and CDC recommendations state that **all** healthy adults aged 18–65 should participate in:
  - Moderate intensity aerobic physical activity for a minimum of 30 min on five days per week

  or

  - Vigorous intensity aerobic activity for a minimum of 20 min on three days per week



WHAT TYPE OF EXERCISE IS GOOD?

- Activity can be occupational, recreational, walking/cycling and household
- Recreational, walking/cycling and household activity resulted in greater risk reduction than occupational activity
- Age seems to matter, with increased physical activity being most helpful in risk reduction in subjects 50 years of age or older
- It appears that the strongest association between physical activity and breast cancer reduction is for recreational activity sustained for a lifetime or at least after menopause that is of moderate intensity and performed regularly

HIGH INTENSITY INTERVAL TRAINING

- Higher intensity for spurts of seconds to minutes with at least the same amount of time for recovery before the next high intensity spurt
- Proponents of this say it decreases time needed for exercise and you continue to burn calories for up to hours afterward
- Easily adapted to most cardio exercise with brief 'sprints' during whatever cardio exercise you are performing
- Can be adapted to resistance training as well

RESISTANCE & HIIT

- Safety first at all times
- Start with low weights and develop your form
- 2-4 times a week with 24-48 hours between sessions
- Change it up every six weeks to keep it challenging for your muscles
  - Once you get going and have good form don't keep doing things that are too easy
- Try to target big muscle groups
- Incorporate body weight resistance (chair squats, lunges, make movements more complex like a fist pump on the down phase of a lunge)

TIME

Recommendations

- 30 – 60 min/day (≥150 min/week)
  - moderate intensity
- 20 – 60 min/day (≥75 min/week)
  - vigorous intensity exercise

*One continuous exercise session or bouts of ≥10 min over the course of a day.

Retrieved from: http://kidsbizmasters.com/?blog=track-your-progress

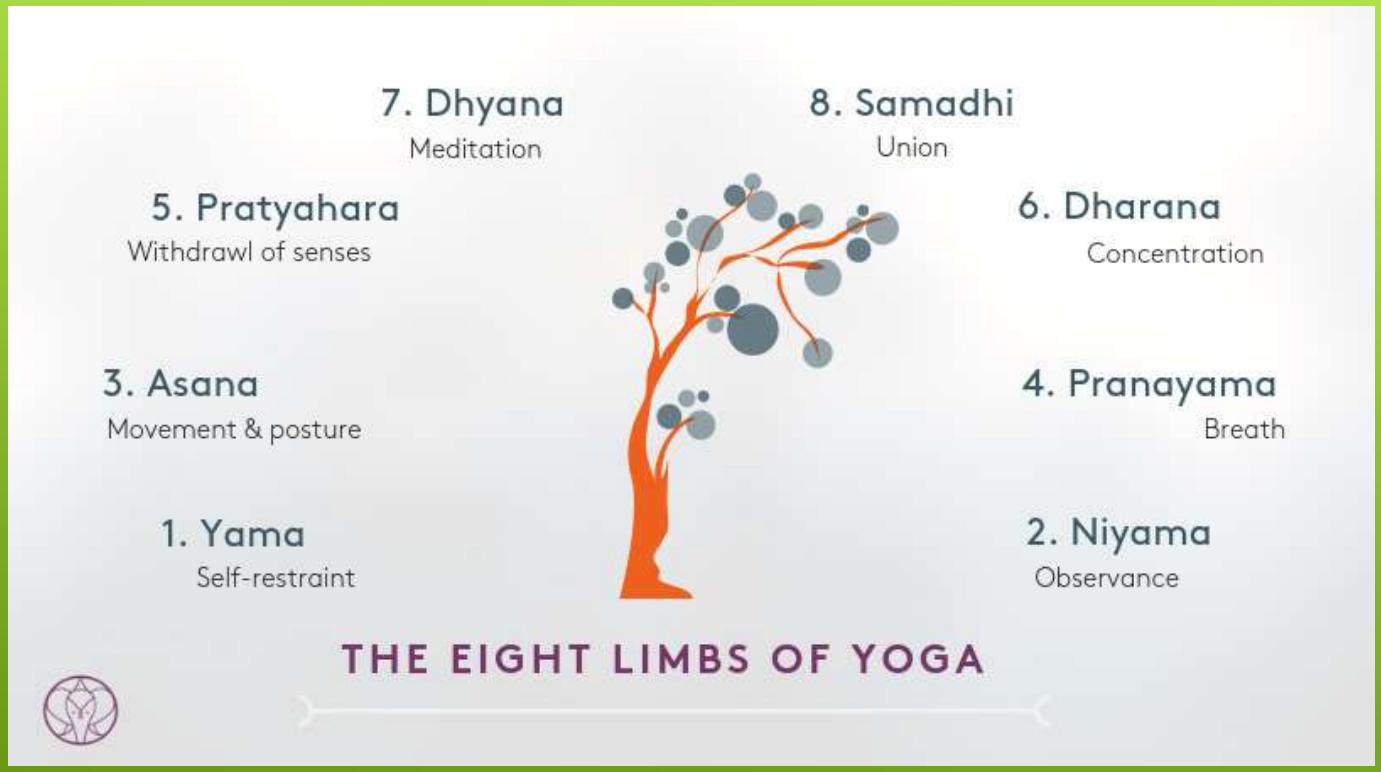
THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Table 1

Categories of exercise intensity and the subjective and objective measures [both absolute and relative] accompanying each category. The relative intensity measures such as % HR_{max}, %HRR [heart rate reserve = HR_{max} − resting HR] and % VO_{2max} [maximal oxygen uptake] will not always correspond to the same RPE among individuals nor will the ability of clients to exercise for a specific duration at each intensity since this varies depending on training status and other personal characteristics. Subjective measures are from Borg's RPE scales where C = category scale [6–20] and C-R = category-ratio scale [0–10] [7].

Intensity category	Objective measures	Subjective measures	Descriptive measures
SEDENTARY	< 1.6 METs < 40% HR_{max} < 20% HRR < 20% VO_{2max}	RPE (C): < 8 RPE (C-R): < 1	• activities that usually involve sitting or lying and that have little additional movement and a low energy requirement
LIGHT	1.6 < 3 METs 40 < 55% HR_{max} 20 < 40% HRR 20 < 40% VO_{2max}	RPE (C): 8-10 RPE (C-R): 1-2	• an aerobic activity that does not cause a noticeable change in breathing rate • an intensity that can be sustained for at least 60 minutes
MODERATE	3 < 6 METs 55 < 70% HR_{max} 40 < 60% HRR 40 < 60% VO_{2max}	RPE (C): 11-13 RPE (C-R): 3-4	• an aerobic activity that is able to be conducted whilst maintaining a conversation uninterupted • an intensity that may last between 30 and 60 minutes
VIGOROUS	6 < 9 METs 70 < 90% HR_{max} 60 < 85% HRR 60 < 85% VO_{2max}	RPE (C): 14-16 RPE (C-R): 5-6	• an aerobic activity in which a conversation generally cannot be maintained uninterupted • an intensity that may last up to about 30 minutes
HIGH	≥ 9 METs ≥ 90% HR_{max} ≥ 85% HRR ≥ 85% VO_{2max}	RPE (C): ≥ 17 RPE (C-R): ≥ 7	• an intensity that generally cannot be sustained for longer than about 10 minutes

HOW DO I KNOW IF I'M DOING ENOUGH?



https://www.yogateket.com/blog/the-8-limbs-of-yoga-explained

YOGA

YOGA

- An ancient practice meant to bring balance to the physical, emotional and spiritual health of the being
- Can be beneficial for healthy individuals, as well as individuals with various diseases
- Studies show that yoga practice has an immediate impact on downregulating stress and anxiety
- Studies show that bi-weekly yoga practice lowers heart rate, diastolic blood pressure, blood glucose, blood lipids, stress and inflammatory markers

https://timesofindia.indiatimes.com/life-style/health-fitness/fitness/how-to-perform-3-most-common-yoga-breathing-exercises/photostory/72400480.cms

1 MINUTE BOX BREATHING

TIPS FOR SUCCESS!

- Talk to your doctor to make sure you are ready physically
- Get proper foot wear
- Find a buddy and make a commitment
- Schedule your exercise time
- Re-schedule if you need to postpone
- Start easy and progress slowly, build success with positive experiences
- If you need some help, we know some good Physical Therapists ☺

IN SUMMARY

- Physical Inactivity is one of the few established breast cancer risk factors amenable to intervention
  - BM Lynch, HK Neilson, CM Friedenreich
- Many studies found a dose-response relationship between increasing physical activity and decreasing breast cancer risks
- Studies looking at the highest level of activity compared to the lowest level of activity found the most statistically significant risk reduction
- The average risk reduction found in studies is 25% with the range of risk reduction reported between 20 and 30%, some studies as high as 40%

REFERENCES

- Lynch, B., Neilson, H., Friedenreich, C. (2011). Physical Activity and Breast Cancer Prevention. *Recent Results in Cancer Research*, 186, 13-42.
- Goncalves, A., Florencio, G., Maisonnette, M., Cobuci, R., Giraldo, P., Cote, N. (2014). Effects of Physical Activity on Breast Cancer Prevention: A Systematic Review. *Journal of Physical Activity and Health*, 11(2): 445-454.
- Ross, A., Thomas, S. (2010). The Health Benefits of Yoga and Exercise: A Review of Comparison Studies. *The Journal of Alternative and Complementary Medicine,* 16 (1), 3-12.
- McTiernan, A et al. (2019). Physical Activity in Cancer Prevention and Survival: A Systematic Review. *Medicine and Science in Sports and Exercise,* 51 (6): 1252-1261
- Mayer Robinson, K. (2021). HIIT (High Intensity Interval Training. *Web MD*.

Breast Cancer

Reducing Environmental Risks

Deborah de Moulpied
Anticancer Lifestyle Program
Cancer Free Home

Only 5-10% of all
breast cancers are hereditary or
genetic.

The rest?
Behavioral, lifestyle, and/or
environmental.

Your behavior and lifestyle can *increase* or *reduce* your exposure to environmental toxins, carcinogens, and endocrine disrupting chemicals.

Think smoking, alcohol, personal care products, types of foods, cleaning and cooking practices, keeping your indoor air clean, etc.

How are we exposed to toxins?

AIR – Dust, off-gassing, VOCs (volatile organic compounds), fragrance, moth balls, candle burning, cooking, cleaning, fragrance, wood burning, air fresheners, pesticides, dry cleaning, solvents, mold, radon, PVC shower curtains

INGESTION – Pesticides from foods, burnt foods, food additives, inhaled particles, microplastics, food contact materials, cookware, contaminants in water (arsenic), plastic containers, canned foods and drinks

SKIN – Sunscreens, cash register receipts, personal care products, soaps, nail polish, fabrics, VOCs, air-borne particles

Endocrine disrupting chemicals (EDCs) are chemicals that mimic, block, or interfere with hormones in the body's endocrine system. They are not carcinogens but can indirectly raise the risk of cancer.

Many chemicals are both carcinogens and EDCs.

Some well known examples of EDCs are ***BPA, flame retardants, pesticides, parabens, phthalates, cadmium, PFASs, and more.***

BPA (and substitutes) can be mostly found in ***canned foods and canned drinks, polycarbonate plastic, and cash register receipts.***

Actions you can take to reduce your risks

1 – Keep your air clean

2 – Be careful what you eat and drink

3 – Think about what goes on your skin

4 – Minimize the use of plastics

5 – Read ingredients

6 – Use safe cleaning products

7 – Don’t use pesticides

8 – When in doubt, do without

Precautionary Principle

A proactive approach, taking preventative action in the face of uncertain harm until a substance is proven harmless.

EWG'S 2020 DIRTY 12™

1. Strawberries
2. Spinach
3. Kale
4. Nectarines
5. Apples
6. Grapes
7. Peaches
8. Cherries
9. Pears
10. Tomatoes
11. Celery
12. Potatoes

EWG'S 2020 CLEAN 15™

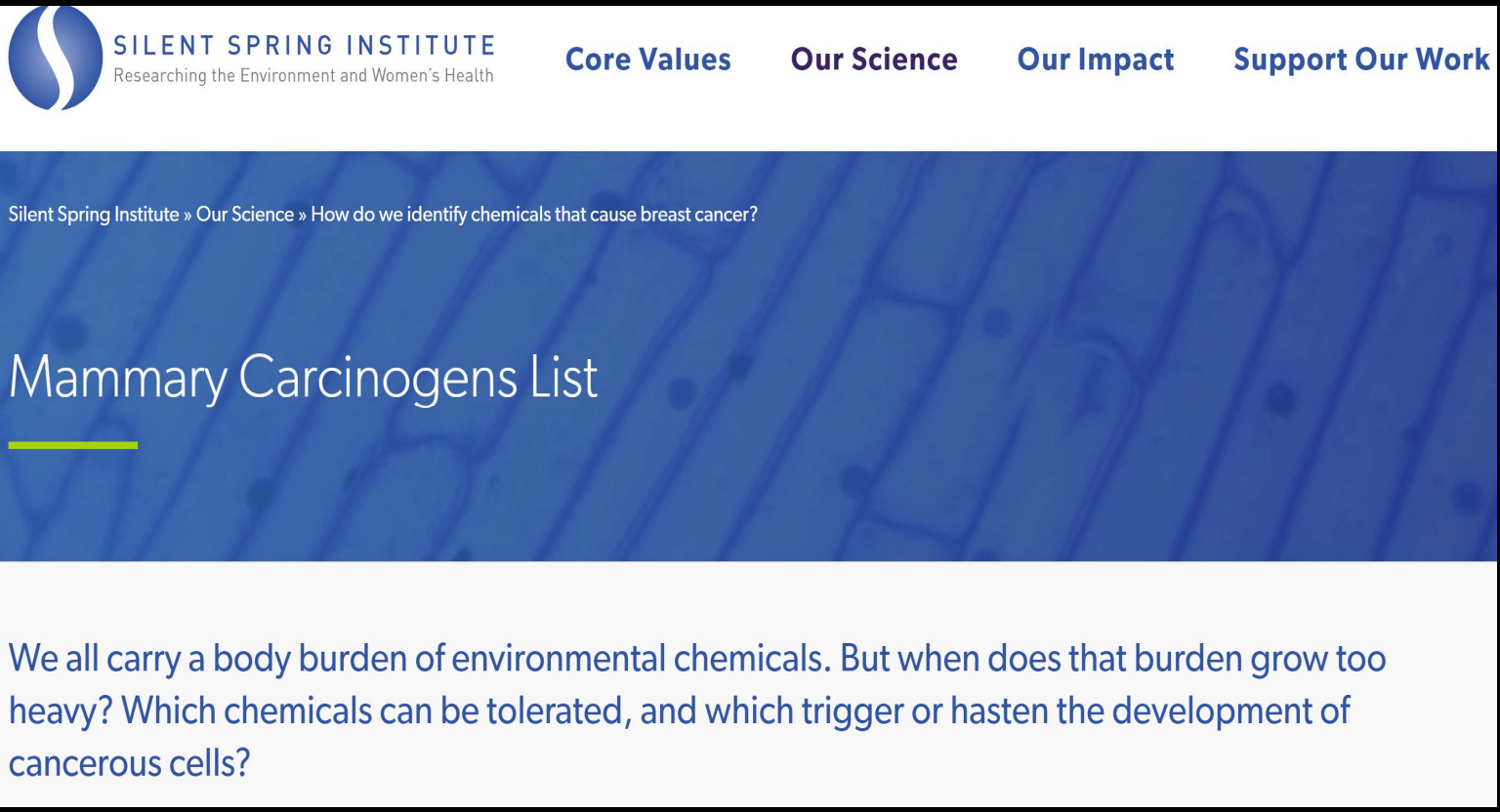
1. Avocados
2. Sweet Corn
3. Pineapple
4. Onions
5. Papaya
6. Sweet Peas (Frozen)
7. Eggplant
8. Asparagus
9. Cauliflower
10. Cantaloupe
11. Broccoli
12. Mushrooms
13. Cabbage
14. Honeydew Melon
15. Kiwi

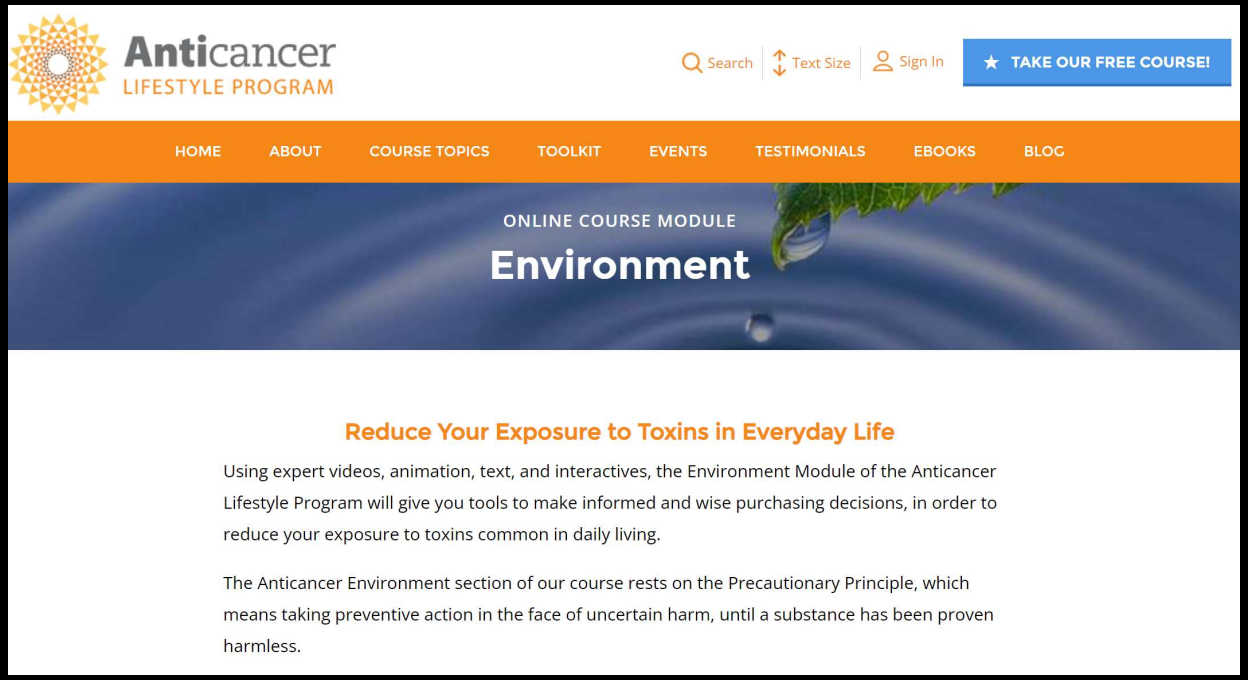
Science & Policy

Glossary of Breast Cancer Exposures

When it comes to preventing breast cancer, did you know only 10% of breast cancers are attributed to genetics? Preventable causes of the disease include exposures to toxic chemicals and other environmental factors. We've summed up the science connecting the exposures with the strongest evidence linked to breast cancer for you here.

1,3-Butadiene | Alcohol | Alkylphenols | Aromatic Amines | Atrazine | Benzene | Bioidentical Hormones | Bisphenol A (BPA) | Bovine Growth Hormone (rBGH & rBST) | Cadmium & Other Metals | Chlorpyrifos | DDT & DDE | Dieldrin & Aldrin | Diethylstilbestrol (DES) | Dioxins | Ethylene Oxide | Fragrance | Glyphosate-based Herbicides | Heptachlor | Hormone Replacement Therapy (HRT) | Hormones in Personal Care Products | Ionizing Radiation | Night Shift Workers: Light-at-Night | Non-Ionizing Radiation (EMFs) | Oral Contraceptives | Organic Solvents | Pesticides & Herbicides | Parabens | Per- and Poly-Fluoroalkyl Substances (PFASs- PFOA and PFOS) | Phthalates | Phytoestrogens | Polybrominated Diphenyl Ethers (PBDEs) | Polychlorinated Diphenyls (PCBs) | Polycyclic Aromatic Hydrocarbons (PAHs) | Tobacco Smoke | Triclosan | Sunscreens (UV Filters) | Vinyl Chloride | Zeranol & Mycroestrogens


SILENT SPRING INSTITUTE
Researching the Environment and Women's Health
Core Values
Our Science
Our Impact
Support Our Work
Silent Spring Institute » Our Science » How do we identify chemicals that cause breast cancer?
Mammary Carcinogens List
We all carry a body burden of environmental chemicals. But when does that burden grow too heavy? Which chemicals can be tolerated, and which trigger or hasten the development of cancerous cells?



https://www.ewg.org/skindeep/

https://www.ewg.org/guides/cleaners/

Thank you!

Deborah de Moulpied

Anticancer Lifestyle Program
Cancer Free home