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Tomosynthesis: This New 3D Mammography Significantly Increases Radiation Exposure, and Your Risk of Radiation-Induced Cancer

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By Dr. Mercola

Breast cancer is big business, and mammography is one of its primary profit centers. This is why the industry is fighting tooth and nail to keep it, by downplaying or outright ignoring its significant risks.

In the US, women are still urged to get an annual mammogram starting at the age of 40, completely ignoring the updated guidelines set forth by the U.S. Preventive Services Task Force in 2009.

Unfortunately, many women are completely unaware that the science simply does not back up the use of routine mammograms as a means to prevent breast cancer death.

As was revealed in a 2011 meta-analysis by the Cochrane Database of Systemic Reviews, mammography breast cancer screening led to 30 percent overdiagnosis and overtreatment, which equates to an *absolute risk increase of 0.5 percent*.

There's also the risk of getting a false negative, meaning that a life-threatening cancer is missed.

Unfortunately, many choose to ignore the science and continue to campaign for annual screenings without so much as a hint at the risks involved. What's worse, in a shocking disregard for women's health, instead of admitting there are marked flaws in mammography, they've now unveiled a "new and improved" type of mammogram, called 3D tomosynthesis.

Tomosynthesis is a clever re-branding of the status quo. The multi-millions of dollars spent on creating these invasive machines could have been better utilized on continuing the development of less- or

Story at-a-glance

Breast cancer has become big business, and routine mammography is one of its primary profit centers. Mammograms deliver ionizing radiation, which is known to contribute to cancer. "New and improved" 3D tomosynthesis mammograms still require mechanical compression and expose you to even MORE radiation

While mammograms are touted as the best way to prevent breast cancer death, studies do not support this claim. On the contrary, mounting research shows that routine mammograms harm far more women than they save

A recent study challenges the validity of mammogram screenings, concluding that mammograms have little to no influence in the reduction of the number of women who ultimately die of breast cancer

According to a 2011 meta-analysis, mammography breast cancer screening led to 30 percent overdiagnosis and overtreatment, which equates to an absolute risk increase of 0.5 percent. There's also the risk of getting a false negative, meaning that a life-threatening cancer is missed

Cancer screening is NOT to be misconstrued as a form of cancer prevention. Preventing breast cancer is far more important and powerful than simply trying to detect it after it has already formed. My top tips on how to help prevent this disease are included

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non-invasive technologies such as ultrasound and infrared imaging, inventing new technologies, and on educating women on preventative strategies.

Not only does tomosynthesis still require mechanical compression, it actually exposes you to even HIGHER doses of radiation than a standard mammogram! They also still recommend you continue to receive your traditional 2D mammogram, further multiplying radiation exposure. What kind of insanity is at play here, really? This is not progress in "the war on cancer."

New 3-D Mammography is Basically a CT Scan for Breasts

To achieve a three-dimensional image, the machine moves in an arc around your breast, taking *multiple* x-rays along the way, which are then computed together into a 3D image. The technology received FDA approval in 2011, and is now available in 46 states around the US. But should it be?

"The most effective way to decrease women's risk of becoming a breast cancer patient is to avoid attending screening. Mammography screening is one of the greatest controversies in healthcare, and the extent to which some scientists have sacrificed sound scientific principles in order to arrive at politically acceptable results in their research is extraordinary.

In contrast, neutral observers increasingly find that the benefit has been much oversold and that the harms are much greater than previously believed." writes Peter C. Gotzsche, MD of The Nordic Cochrane Centre and author of Mammography Screening: Truth, Lies and Controversy

As reported by *USA Today*¹ last year:

'The procedures give women twice as much radiation as a standard mammogram, notes surgeon Susan Love, author of Dr. Susan Love's Breast Book. That's because women who get 3-D imaging still undergo traditional 2-D mammography, as well.

Radiation is a known cause of breast cancer. Researchers in recent years have become concerned about radiation exposure from medical imaging, particularly CT scans. A 2009 analysis estimated that CT scans cause about 29,000 cancers and 14,500 deaths a year.

Soltani says the total radiation dose from 3-D mammography is still relatively low, in spite of this increase — from 0.5 millisieverts to 1.0 millisieverts. In comparison, a CT scan of the head has a radiation dose of about 2.0 millisieverts.

Love says she's skeptical about the technology, which she compares to 'a new toy,' noting that the most essential questions about its benefits are likely to remain unanswered. The most important question about a new type of screening, Love says, is not simply how well it finds cancer, but whether it saves lives.

There is no data to prove that tomosynthesis finds more cancer or saves lives, says Fran Visco, president of the National Breast Cancer Coalition. '3-D is a new technology that should not be used outside of a clinical trial,' Visco says. [Emphasis mine]

3D Mammography — A Disaster in the Making?

I find the rollout of 3D mammograms quite disturbing considering the fact that the primary hazard of conventional 2D imaging is *ionizing radiation*. According to one 2010 study,² annual screening using digital or screen-film mammography on women aged 40–80 years is associated with an induced cancer incidence and fatal breast cancer rate of 20–25 cases per 100,000. Meaning, annual mammograms CAUSE 20-25 cases of fatal cancer

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for every 100,000 women getting the test. The study also states that:

- Two-view screening with digital mammography delivers a slightly lower dose than does the older screen-film mammography
- Mean glandular dose of radiation from a breast CT scan is comparable to that from one screen-film mammogram
- A single digital breast tomosynthesis view involves a mean glandular dose comparable to that of a digital mammogram. The *total* radiation dose delivered at digital breast tomosynthesis will depend on the image acquisition strategy: whether single-view digital breast tomosynthesis, two-view digital breast tomosynthesis, or a combination of digital breast tomosynthesis and planar digital mammogram views are acquired.

Since the 3D mammogram requires multiple views in order to achieve three-dimensionality, it stands to reason your total radiation dose from 3D mammography can be *considerably* higher than a standard 2D mammogram. We know all levels of ionizing radiation can cause cancer but, astonishingly, radiologists still want you to have your traditional mammogram screening first, followed by a 3D tomosynthesis mammogram for those with dense breasts or an area of suspicion!

Again, this is not progress — it's a huge step backward, making cancer screening even more dangerous than before.

Granted, a study³ published this year (which included more than 12,600 women), showed a 40 percent increase in the detection or identification of invasive cancers, and a 15 percent decrease in false positives when adding 3D mammography to traditional 2D screening. But while this sounds good, this must be weighed against the now *significantly increased* risk of the test itself CAUSING fatal cancer.

Confirmed: The More Mammograms You Get the More Harm They Do

Sayer Ji, founder of Greenmedinfo.com recently posted an article on mammograms, stating:⁴

"Mammograms are in the news again, and it doesn't look good for those who continue to advocate using them to 'detect cancer early' in asymptomatic populations. The science increasingly runs directly counter to the screening guidelines produced by both governmental and nongovernmental health organizations claiming to be advocates for women's health.

*Remember that only last November, the New England Journal of Medicine⁵ published a shocking analysis of the past 30 years of breast screening in the US, finding that 1.3 million women were overdiagnosed and overtreated for breast cancer – euphemisms for **misdiagnosed** and **mistreated**. This finding, released cunningly from scientific embargo to the media on the eve of Thanksgiving, was so devastating in its implications that many either did not understand its meaning, or could not bear to accept the truth...*

The only calculable dimension of this world-historical failure is the billions of dollars that were made in the process of converting healthy, asymptomatic women into 'patients,' and if fortunate enough to make it through treatment, 'survivors.'"

As reported by *The Los Angeles Times*,⁶ another study is now raising eyebrows as it claims women who follow the American Cancer Society's guidelines and get annual mammograms starting at age 40 not only receive NO additional protection against aggressive breast cancer, but actually experience greater harm through increased false positives and unnecessary treatments, when compared to women who get biennial mammograms between the ages of 50 and 74 only (which is what the U.S. Preventive Services Task Force now recommends).

"Even after researchers adjusted for confounding factors such as age, place of residence and race, they found no benefit to more frequent screenings," the LA Times reports. "More concerning, the researchers found that the more times women were screened the greater their odds of getting 'false positives' on mammograms."

The article goes on to estimate that if all American women between 66-89 received annual mammograms instead of biannual testing, **this results in a staggering 3.86 million more false-positives and 1.15 million**

more biopsies.

Women Need to Become Better Informed

In order to make better informed decisions, women need to be provided with all of their screening options, including their strengths and weaknesses; benefits and risks. Today, women are still rarely informed about the fact that ionizing radiation is a major contributor to cancer, i.e. that routine testing itself can increase their risk of lethal breast cancer.

However, despite the introduction of 3D mammograms, the tide of thought on mammography's benefits is rapidly changing, as evidenced by several recently published studies, including:

1. *Archives of Internal Medicine*⁷ published a meta-analysis of 117 randomized, controlled mammogram trials. Among its findings: Rates of false-positive results are high (20% to 56% after 10 mammograms), and "although few women 50 years of age or older have risks from mammography that outweigh the benefits, the evidence suggests that more women 40 to 49 years of age have such risks"
2. A study published in the *British Medical Journal*⁸ in December 2011, confirmed that breast cancer screening may cause women harm, especially during the early years after they start screening. This harm is largely due to surgeries, such as lumpectomies and mastectomies, and other (often unnecessary) interventions. The study highlights losses in quality of life from false positive results and unnecessary treatment
3. In September 2010, the *New England Journal of Medicine* published the first study⁹ in years to examine the effectiveness of mammograms. Their findings are a far cry from what most public health officials would have you believe. The bottom line is that mammograms seem to have reduced cancer death rates by only 0.4 deaths per 1,000 women — an amount so small it might as well be zero. Put another way, 2,500 women would have to be screened over 10 years for a single breast cancer death to be avoided.
4. A 2011 meta-analysis by the Cochrane Database of Systemic Reviews¹⁰ found that mammography breast cancer screening led to 30 percent overdiagnosis and overtreatment, which equates to an *absolute risk increase of 0.5 percent*. The researchers noted:

"[F]or every 2,000 women invited for screening throughout 10 years, one will have her life prolonged and 10 healthy women, who would not have been diagnosed if there had not been screening, will be treated unnecessarily. Furthermore, more than 200 women will experience important psychological distress for many months because of false positive findings. It is thus not clear whether screening does more good than harm." [Emphasis mine]

Breast Cancer Prevention Strategies

Cancer screening is NOT to be misconstrued as a form of cancer prevention. Preventing breast cancer is far more important and powerful than simply trying to detect it after it has already formed, which is why I want to share my top tips on how to help prevent this disease in the first place.

In the largest review of research into lifestyle and breast cancer, the American Institute of Cancer Research estimated that about 40 percent of U.S. breast cancer cases could be prevented if people made wiser lifestyle choices.^{11, 12} I believe these estimates are far too low, and it is more likely that 75 percent to 90 percent of breast cancers could be avoided by strictly applying the recommendations below.

- **Avoid sugar, especially fructose.** All forms of sugar are detrimental to health in general and promote cancer. Fructose, however, is clearly one of the most harmful and should be avoided as much as possible.
- **Optimize your vitamin D.** Vitamin D influences virtually every cell in your body and is one of nature's most potent cancer fighters. Vitamin D is actually able to enter cancer cells and trigger apoptosis (cell death). If you have cancer, your vitamin D level should be between 70 and 100 ng/ml. Vitamin D works synergistically with every cancer treatment I'm aware of, with no adverse effects. I suggest you try watching my one-hour free lecture on vitamin D to learn more.

Remember that if you take high doses of oral vitamin D3 supplements, you also need to increase your vitamin K2 intake, as vitamin D increases the need for K2 to function properly. See my previous article [What You Need to Know About Vitamin K2, D and Calcium](#) for more information.

Please consider joining one of GrassrootsHealth's D*Action's vitamin D studies to stay on top of your vitamin D performance. For more information, see my previous article [How Vitamin D Performance Testing Can Help You Optimize Your Health](#).

- **Get plenty of natural vitamin A.** There is evidence that vitamin A also plays a role in helping prevent breast cancer.¹³ It's best to obtain it from vitamin A-rich foods, rather than a supplement. Your best sources are organic egg yolks,¹⁴ raw butter, raw whole milk, and beef or chicken liver.
- **Lymphatic breast massage** can help enhance your body's natural ability to eliminate cancerous toxins. This can be applied by a licensed therapists, or you can implement self-lymphatic massage. It is also promotes self-nurturance.
- **Avoid charring your meats.** Charcoal or flame broiled meat is linked with increased breast cancer risk. [Acrylamide](#) — a carcinogen created when starchy foods are baked, roasted or fried — has been found to increase breast cancer risk as well.
- **Avoid unfermented soy products.** [Unfermented soy](#) is high in plant estrogens, or phytoestrogens, also known as isoflavones. In some studies, soy appears to work in concert with human estrogen to increase breast cell proliferation, which increases the chances for mutations and cancerous cells.
- **Improve your insulin receptor sensitivity.** The best way to do this is by avoiding sugar and grains and making sure you are [exercising](#), especially with [Peak Fitness](#).
- **Maintain a healthy body weight.** This will come naturally when you begin eating right for your nutritional type and exercising. It's important to lose excess body fat because fat produces estrogen.
- **Drink a quart of organic green vegetable juice daily.** Please review [my juicing instructions](#) for more detailed information.
- **Get plenty of high quality animal-based omega-3 fats, such as krill oil.** [Omega-3 deficiency](#) is a common underlying factor for cancer.
- **Curcumin.** This is the active ingredient in turmeric and in high concentrations can be very useful adjunct in the [treatment of breast cancer](#). It shows immense therapeutic potential in preventing breast cancer metastasis.¹⁵ It's important to know that curcumin is generally not absorbed that well, so I've provided several [absorption tips](#) here.
- **Avoid drinking alcohol**, or at least limit your alcoholic drinks to one per day.
- **Breastfeed exclusively** for up to six months. Research shows breastfeeding can reduce your breast cancer risk.
- **Avoid wearing underwire bras.** There is a good deal of data that metal [underwire bras](#) can heighten your breast cancer risk.
- **Avoid electromagnetic fields as much as possible.** Even electric blankets can increase your cancer risk.
- **Avoid synthetic hormone replacement therapy.** Breast cancer is an estrogen-related cancer, and according to a study published in the *Journal of the National Cancer Institute*, breast cancer rates for women dropped in tandem with decreased use of [hormone replacement therapy](#). (There are similar risks for younger women who use oral contraceptives. Birth control pills, which are also comprised of synthetic hormones, have been linked to cervical and breast cancers.)

If you are experiencing excessive menopausal symptoms, you may want to consider bioidentical hormone replacement therapy instead, which uses hormones that are molecularly identical to the ones your body produces and do not wreak havoc on your system. This is a much safer alternative.

- **Avoid BPA, phthalates and other xenoestrogens.** These are estrogen-like compounds that have been

linked to increased breast cancer risk

- **Make sure you're not iodine deficient**, as there's compelling evidence linking iodine deficiency with breast cancer. Dr. David Brownstein,¹⁶ author of the book *Iodine: Why You Need It, Why You Can't Live Without It*, is a proponent of iodine for breast cancer. It actually has potent anticancer properties and has been shown to cause cell death in breast and thyroid cancer cells.

For more information, I recommend reading Dr. Brownstein's book. I have been researching iodine for some time ever since I interviewed Dr. Brownstein as I do believe that the bulk of what he states is spot on. However, I am not at all convinced that his dosage recommendations are correct. I believe they are too high.

Arm Yourself with Information So You Can Take Control of Your Health

Many women are completely unaware that the science backing the use of mammograms is sorely lacking, and that *more* women are being harmed by regular mammograms than are saved by them. Peter C. Gotzsche, MD of the Nordic Cochrane Centre' recently published a groundbreaking book *Mammography Screening: Truth, Lies and Controversy*. It offers a comprehensive take on the evidence, and a critical look at the scientific disputes and the information provided to women by governments and cancer charities. It also explains why mammography screening is unlikely to be effective today.

Many also do not realize that the "new and improved" 3D tomosynthesis mammogram actually ends up exposing you to MORE cancer-causing ionizing radiation than the older version. This is not a step forward... Please understand that there are other screening options, each with their own strengths and weaknesses, and you have a right to utilize those options. Also remember that in order to truly avoid breast cancer, you need to focus your attention on prevention.

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