

Breast Imaging: Thermography

- Special thanks to providers with INTEGRITY:
 - MindfulWellnessMedicalThermography.com
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 - BodyLifeImaging.com
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 - William Hobbins, MD in California



Breast Imaging: Best Option?

- Multi-disciplinary! We need to triangulate.
 - Imaging (pick two that are best for you)
 - Clinical breast exam (CBE) if you can find one
 - Breast self-check/ breast self-exam (BSE)
 - Exercising your options will likely cost you out of pocket expenses



Breast Self-Check: References

- **Breast cancer screening controversies.**
- J Am Board Fam Pract. 2003 May-Jun;16(3):233-41.
- [Green BB¹](#), [Taplin SH](#).
- Author information:
¹Center for Health Studies, and the Department of Preventive Care, Group Health Cooperative, Seattle, WA 98101-1448, USA.
- Women do find breast cancers by self-examination. In women ages 40 to 45 years (before many have routine mammography), 65% of the cancers were self-detected. Self-detection was divided equally between those who did routine BSE and those who accidentally found a breast lump. In a series of 3,197 invasive cases of cancer diagnosed in Wisconsin from 1988 to 1990, women detected their own cancers 55% of the time.



Breast Self-Check: References

- **Breast cancer screening controversies (cont'd)**
- No studies have directly tested the efficacy of the CBE in decreasing breast cancer mortality. **At Group Health Cooperative, 8% of all diagnosed breast cancers were found by the CBE alone (negative mammogram).** Whether this 8% incremental increase in case finding leads to decreased breast cancer deaths is unknown. There is good evidence that training women to perform BSE does not increase breast cancer diagnoses or decrease breast cancer deaths.
- The balance of the evidence still favors screening mammography in women aged 40 years and older at least every 2 years. The independent incremental benefit of the CBE, when added to mammography, in decreasing breast cancer mortality is unknown. Population-based education and training to do BSE are unlikely to lead to decreased breast cancer deaths. Many women find their own breast cancers, so women need to pay attention to symptoms or changes in their breasts.



Breast Self-Check: References

- **Risk of malignancy in palpable solid breast masses considered probably benign or low suspicion: implications for management.**
- [J Ultrasound Med.](#) 2012 Dec;31(12):1943-9.
- [Giess CS¹](#), [Smeglin LZ](#), [Meyer JE](#), [Ritner JA](#), [Birdwell RL](#).
- Conclusion: The incidence of malignancy in palpable solid breast masses classified as BI-RADS 3 or 4A in this study was less than 2%



Breast Self-Check: References

- **Improving frequency and proficiency of breast self-examination: effectiveness of an education program.**
- Am J Public Health. 1985 Jun;75(6):618-24.
- [Mamon JA](#), [Zapka JG](#).
- The pre-intervention and six-months-after experimental-control comparisons show that: current performance of BSE increased by 26 per cent, bi-monthly or more often **BSE performance increased by 29 per cent**, and performance proficiency improved by 22 per cent. A significantly larger proportion of women in the experimental group discussed BSE with others than women in the control groups. The "talked to" mothers, compared to the "not talked to" mothers performed BSE more regularly, in more positions, and spent more time on the examination. The results from this study suggest that properly targeted educational programs can significantly improve early detection behaviors in women. In addition, the evaluation protocol defined proficiency measures and validated measurement tools. Subsequent studies need to examine the relation of proficiency measures to detection of abnormality and subsequent effect on morbidity and mortality, so that the debate about BSE efficacy can be scientifically addressed.



Breast Self-Check: References

- **Comparison of three methods of teaching women how to perform breast self-examination.**
- Health Educ Q. 1985 Fall;12(3):259-72.
- [Assaf AR](#), [Cummings KM](#), [Graham S](#), [Mettlin C](#), [Marshall JR](#).
- it was found that lump detection performance, as measured on silicone breast models, was significantly higher among those women who had been given an opportunity to practice doing the breast examination on a breast model with corrective feedback given by a BSE instructor. **The opportunity to practice doing the examination with corrective feedback on performance appears to be a critical variable in the acquisition of BSE skill.**



Breast Self-Check: References

- **Can an instruction video or palpation aid improve the effectiveness of breast self-examination in detecting tumors? An experimental study.**
- Breast Cancer Res Treat. 2006 May;97(2):167-72. Epub 2005 +Dec 2.
- [von Georgi R¹](#), [Thele F](#), [Hackethal A](#), [Münstedt K](#).
- The dependent variable was the rate of accurate tumor detection--the mean sum of correct positive hits (CPH)--defined as **tumors detected within 20 s.**
- Using an instruction video or palpation aid did not improve the effectiveness of breast examination in detecting tumors--a finding which supports results from large randomized studies. **It is difficult to understand why BSE is still promoted by various groups.**
- **WHAT?!?**



Breast Self-Check: References

- **Effects of a smartphone application on breast self-examination: a feasibility study.**
- Healthc Inform Res. 2013 Dec;19(4):250-60. doi: 10.4258/hir.2013.19.4.250. Epub 2013 +Dec 31.
- [Heo J¹](#), [Chun M¹](#), [Lee KY²](#), [Oh YT¹](#), [Noh OK¹](#), [Park RW³](#).
- A smartphone application, based on the Android OS, was developed with functions including a BSE date alarm, a reminder to encourage mother and daughter to practice BSE together, record keeping, and educational content with video clips. In subgroup analysis (age < 30 years), the number of participants using BSE increased +from 8 to 18 (36.4% to 81.8%, p=0.002), and the number of those using it at the appropriate time rose from 1 to 15 (2.2% to 33.3%, p< 0.001).
- The use of the developed smartphone application increased BSE in females younger than 30 years. To confirm the long-term benefits of the mobile application, additional studies must be carried out.



Breast Self-Check: References

- **Preventive health care, 2001 update: should women be routinely taught breast self-examination to screen for breast cancer?**
- CMAJ. 2001 +Jun 26;164(13):1837-46.
- [Baxter N¹](#); [Canadian Task Force on Preventive Health Care.](#)
- To date, 2 large randomized controlled trials, a quasi-randomized trial, a large cohort study and several case-control studies have failed to show a benefit for regular performance of BSE or BSE education, compared with no BSE. In contrast, there is good evidence of harm from BSE instruction, including significant **increases in the number of physician visits for the evaluation of benign breast lesions and significantly higher rates of benign biopsy results.**

Breast Self-Check: References

- **Screening for Breast Cancer: Systematic Evidence Review Update for the US Preventive Services Task Force [Internet].**
- **Editors**
- [Nelson HD](#), [Tyne K](#), [Naik A](#), [Bougatsos C](#), [Chan B](#), [Nygren P](#), [Humphrey L](#).
- Rockville (MD): Agency for Healthcare Research and Quality (US); 2009 Nov. Report No: 10-05142-EF-1.
[U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews.](#)
- Mammography screening reduces breast cancer mortality for women age 39–69 years; data are insufficient for women age 70 years and older. **False-positive mammography results and additional imaging are common. No benefit has been shown for CBE or BSE.**



Breast Self-Check: References

- **Why does patient activation matter? An examination of the relationships between patient activation and health-related outcomes.**
- J Gen Intern Med. 2012 May;27(5):520-6. doi: 10.1007/s11606-011-1931-2.
- [Greene J¹](#), [Hibbard JH](#).
- For every additional 10 points in patient activation, the predicted probability of having an ED visit, being obese, or smoking was one percentage point lower. The likelihood of having a breast cancer screen or clinical indicators in the normal range (A1c, HDL, and triglycerides) was one percentage point higher.
- This cross sectional study finds that patient activation is strongly related to a broad range of health-related outcomes, which suggests improving activation has great potential. Future work should examine the effectiveness of interventions to support patient activation.



Breast Self-Check: References

- **The benefits and harms of screening for cancer with a focus on breast screening.**
- Pol Arch Med Wewn. 2010 Mar;120(3):89-94.
- [Brodersen J¹, Jørgensen KJ, Gøtzsche PC.](#)
- Systematic reviews of the randomized trials have shown that for every 2000 women invited for mammography screening throughout 10 years, only 1 will have her life prolonged. In addition, 10 healthy women will be overdiagnosed with breast cancer and will be treated unnecessarily. Furthermore, more than 200 women will experience substantial psychosocial distress for months because of false-positive findings. **Regular breast self-examination does not reduce breast cancer mortality, but doubles the number of biopsies**, and it therefore cannot be recommended. The effects of routine clinical breast examination are unknown, but considering the results of the breast self-examination trials, it is likely that it is harmful. **The effects of screening for breast cancer with thermography, ultrasound or magnetic resonance imaging are unknown. It is not clear whether screening with mammography does more good than harm.** Women invited to screening should be informed according to the best available evidence, data should be reported in absolute numbers, and benefits and harms should be reported using the same denominator so that they can be readily compared.



Breast Self-Check: References

- **Practice of breast self examination: disease extent at diagnosis and patterns of surgical care. A report from an Italian study. GIVIO (Interdisciplinary Group for Cancer Care Evaluation).**
- J Epidemiol Community Health. 1991 Jun;45(2):112-6.
- [No authors listed]
- Overall, 511 patients (39%) reported some breast self examination practice, but only 109 (8%) did this regularly and in a way deemed correct by their physicians. Breast self examination practice was positively associated with patients' education and past history of benign breast disease and negatively with age. **Self examiners were found to have a significantly greater chance of being diagnosed with a primary tumour coded as pT1 according to the 1982 TNM classification (odds ratio = 1.42, 95% CI = 1.13-1.79). This protective effect was mostly evident in the subgroup of optimal performers (odds ratio = 1.54, CI = 1.01-2.34).** Nearly half the patients (319/655) eligible for conservative surgery still had an unnecessary radical procedure.
- Premorbid breast self examination seems to have a modest effect on the extent of disease at diagnosis.



Breast Self-Check: References

- **Self-examination in the early detection of breast cancer: memorandum from a WHO meeting.**
- Bull World Health Organ. 1984;62(6):861-9. [No authors listed]
- Breast self-examination is of interest for the early detection of breast cancer, especially in areas where mammography and regular physical examination of the breasts are not practicable as public health policies. At present, there is insufficient evidence that breast self-examination is effective in reducing mortality from breast cancer. **Until the effectiveness of breast self-examination has been established, it cannot be recommended as a public health measure for control of breast cancer.**



Breast Self-Check: References

- **Secondary prevention: screening for breast cancer.**
- Eff Health Care. 1985;2(5):179-88.
- [Chamberlain J.](#)
- Clinical examination of the breasts is a less satisfactory test in older women but it may be useful in premenopausal women in whom mammography is less sensitive. **The validity of self-examination of the breasts by women themselves is still largely unknown, but it is unlikely that compliance with regular breast self-examination will be as high as women's acceptance of screening.** Further research is required into the optimal frequency of screening and into its cost-effectiveness.



Breast Self-Check: References

- **Effectiveness of methods used to teach breast self-examination.**
- Am J Prev Med. 1990 Jul-Aug;6(4):208-17.
- [Bennett SE¹](#), [Lawrence RS](#), [Angiolillo DF](#), [Bennett SD](#), [Budman S](#), [Schneider GM](#), [Assaf AR](#), [Feldstein M](#).
- Multiple tests for comparisons of interventions showed that the interventions containing BSE instruction were comparable in increasing true- and false-positive detection of lumps and in improving search technique, but the minimal intervention resulted in lower scores for all three outcomes. **Women in all four intervention groups increased their BSE frequency over the four-month follow-up period, but the greatest improvement in frequency was reported among women receiving reminders.**



Breast Self-Check: References

- **Practice and effectiveness of breast self examination: a selective review of the literature (1977-1989).**
- J Cancer Educ. 1991;6(2):83-92.
- [Coleman EA](#).
- From a review of the literature on studies on breast self examination (BSE), it is evident that BSE functions as an effective preventive health behavior. Only 19% to 40% of women practice BSE on a monthly basis, **and there is no strong evidence that women who practice monthly BSE perform the procedure correctly.** Confidence in BSE performance, prior BSE instruction, and finding some way to remember to do BSE were the factors most positively associated with frequent BSE practice. Women need to be given the facts about breast cancer and information about early detection methods and also need to be taught BSE in such a way that they feel confident in their BSE skills. **The most effective way to teach BSE is to teach the woman on her own breasts. Since BSE is a skill, an accurate assessment of the learners' BSE techniques is necessary to adequately evaluate BSE teaching methods.**



Breast Self-Check: References

- **Relative effectiveness of methods of breast self-examination.**
- J Behav Med. 1991 Aug;14(4):357-67.
- [Atkins E¹](#), [Solomon LJ](#), [Worden JK](#), [Foster RS Jr](#).
- **Results indicated that the vertical strip pattern was associated with significantly greater coverage of the breast area.** There were no significant differences in lump detection; however, the sliding finger palpation technique resulted in significantly more false identifications of lumps.



Breast Self-Check: References

- **Prevention and screening for breast cancer.**
- Cancer Detect Prev. 1993;17(4-5):551-5.
- [Harper GR¹](#), [Englisbe BH](#).
- Screening mammography has demonstrated effectiveness in reducing mortality in women over 50. The "Partnerships in Healthcare" program aims to enhance the early detection of breast cancer in Poland by providing mammography units, training for technicians and nurses, and **incentives to develop multidisciplinary approaches to diagnosis and treatment.**



Breast Self-Check: References

- **Training and maintenance of breast self-examination skills.**
- Am J Prev Med. 1993 Nov-Dec;9(6):353-8.
- [Pinto BM.](#)
- Twenty-nine women (ages 25-64 years) were trained to complete BSE **using the MammaCare training program**. Experimental subjects were required to demonstrate their skills at a two-month reassessment and received retraining if their skills had declined below set standards. Measures of proficiency were obtained by requiring all subjects to examine breast models at pretraining, posttraining, and two follow-ups (four months and one year). Lump detection rates were significantly higher in the experimental group at both follow-ups. The control group showed a significant decrease in lump detection rates between posttraining and each follow-up. **Results suggest that, after training, periodic reassessment (and retraining) could prevent significant deterioration of BSE skills.**



Breast Self-Check: References

- **Is mammography screening for breast cancer really not justifiable?**
- Recent Results Cancer Res. 2003;163:115-28; discussion 264-6.
- [Miller AB.](#)
- **Since the 1990s, there has been an unprecedented reduction in breast cancer mortality in many countries. However, the reductions have no clear link to screening, but are probably due to the implementation of adjuvant treatment with chemotherapy and tamoxifen.** Whether screening will have an additional impact in the future is unclear. After reviewing the published evidence, **I conclude that the additional contribution of mammography over screening by good breast physical examinations and breast self examination is to detect good prognosis breast cancers, as the benefit of screening derives from the earlier detection of relatively advanced breast cancers, providing good therapy is given.** If women choose mammography screening, they should understand that their risk of dying in the next few years may not be reduced.



Breast Self-Check: References

- **Breast cancer screening methods: a review of the evidence.**
- Health Care Women Int. 2003 Nov;24(9):773-93.
- [Vahabi M.](#)
- Author information:
Toronto District Health Council, Toronto, Ontario, Canada. mvahabi@tdhc.org
- In this article I provide an overview of evidence related to each of the three breast screening modalities. The evidence shows that screening mammography and proper examination of breasts can be useful in reducing breast cancer mortality.



Breast Self-Check: References

- **Awareness and impact of education on breast self examination among college going girls.**
- Indian J Palliat Care. 2011 May;17(2):150-4. doi: 10.4103/0973-1075.84538.
- [Shalini¹](#), [Varghese D](#), [Nayak M](#).
- Breast cancer accounts for 19-34% of all cancer cases among women in India. There is high mortality due to late stage diagnosis as patients usually present at an advanced stage because of lack of awareness and nonexistent breast cancer screening programs. Early detection and prompt treatment offer the greatest chance of long-term survival and breast self-examination (BSE) seems to be an important viable optional substitute for early detection of cancer.
- Awareness regarding breast self examination among young generations is useful and it is the most important viable tool for early detection.



Breast Self-Check: References

- **Effect of screening mammography on cumulative survival of Japanese women aged 40-69 years with breast cancer.**
- Breast Cancer. 2012 +Dec 14. [Epub ahead of print]
- [Kawai M](#)¹, [Suzuki A](#), [Nishino Y](#), [Ohnuki K](#), [Ishida T](#), [Amari M](#), [Shibuya D](#), [Ohuchi N](#).
- In terms of the survival and risk of breast cancer death, MMG with CBE may be more effective than MMG alone or self-detection for Japanese women aged 40-69 years.



Breast Self-Check: References

- **Screening for breast cancer.**
- JAMA. 2005 +Mar 9;293(10):1245-56.
- [Elmore JG](#)¹, [Armstrong K](#), [Lehman CD](#), [Fletcher SW](#).
- Screening clinical breast examination detects some cancers missed by mammography, but the sensitivity reported in the community is lower (28% to 36%) than in randomized trials (about 54%). Breast self-examination has not been shown to be effective in reducing breast cancer mortality, but it does increase the number of breast biopsies performed because of false-positives.



Breast Self-Check: References

- ***Breast self-examination in relation to the occurrence of advanced breast cancer.***
- J Natl Cancer Inst 1991; **83**: 260–5.
- *Newcomb PA, Weiss NS, Storer BE, Scholes D, Young BE, Voigt LF.*
- Although the results we obtained must be interpreted quite cautiously (*see above*), they argue that BSE as practiced in the Seattle area is accomplishing little in reducing the risk of death from breast cancer. **Our suggestion of a lowered risk in women who perform BSE proficiently needs to be pursued in populations in which there is a higher prevalence of such women.**



Breast Self-Check: References

- ***Effect of breast self-examination techniques on the risk of death from breast cancer.***
- *CMAJ*1997; **157**: 1205–12.
- *Harvey BJ, Miller AB, Baines CJ, Corey PN.*
- In conclusion, evidence from our study and from the population-based case–control study by Newcomb and collaborators **suggests that proficient BSE practice may reduce the risk of death from breast cancer.**

