



Ordre des technologues  
en imagerie médicale,  
en radio-oncologie et en  
électrophysiologie médicale  
du Québec

# MAMMOGRAPHY

## IS A THYROID SHIELD NECESSARY?



# NO

The radiation dose to the thyroid is exceptionally low during a mammography examination. The benefits of the exam without the thyroid shield far exceed the risk of developing radiation-induced thyroid cancer. **The Ordre des technologues en imagerie médicale, en radio-oncologie et en électrophysiologie médicale** does not recommend using the thyroid shield during a mammography examination, as the quality of the images is key to establish an accurate diagnosis.

[www.mammothyroide.ca](http://www.mammothyroide.ca)  
**1-877-X-THYROIDE**  
(1-877-984-9764)

# MYTH OR REALITY

**C**ontrary to an increasingly widespread false statement, the use of thyroid shielding during a mammography examination is unnecessary!

Not only is the radiation dose to the thyroid exceptionally low, but given the precision required to ensure the quality and compliance of images of the breast, it is preferable not to use the thyroid shield. The shield can mask important areas of the breast, leading to retakes of images and higher dose of radiation. Consequently, the benefits of the exam without a thyroid shield far exceed the risk of radiation-induced cancer.

Many studies indicate that the thyroid shield is not recommended during a mammography examination. During this exam, the primary gland exposed to radiation is the mammary gland (breast). It receives about 4 mGy per exam. It is important to know that the thyroid gland is not directly exposed to radiation during the mammography exam. It only receives 0.03 mGy<sup>1</sup> per exam. With the use of a thyroid shield, the risk of repeating the exam with additional radiation is relatively high, since breast tissue can be masked by the shield and the image may not show the presence of cancer. Consequently, the technologist will have to take another image, thus doubling the dose of radiation to the mammary gland.

Given that the mammary gland is much more sensitive to radiation than the thyroid gland, repeating an exam, due to thyroid shielding, creates more risk of the patient developing radiation-induced cancer over her lifetime than her receiving an indirect dose to the thyroid gland.

**Thyroid shield hiding a significant portion of the breast, illustrating the reduced quality of the image.**

In mammography, the quality of the images is key to establishing an accurate diagnosis. The above mammography image of the breast<sup>4</sup> shows the presence of the thyroid shield (the upper posterior area of the breast indicated by the blue arrow). The right-hand image is a repeat of the exam without the thyroid shield and shows normal breast tissue as well as a better quality image.

In 2011, the Canadian Association of Radiologists (CAR)<sup>2</sup> and the American College of Radiology (ACR)<sup>3</sup> reiterated that the risk is negligible, since the thyroid gland is not directly exposed to the radiation, and that using a thyroid shield can interfere with the quality of mammography exams.

The Order wishes to clarify and reassure women by reiterating that a **mammography examination without a thyroid shield is absolutely safe.**

## FREQUENTLY ASKED QUESTIONS

**Q:** *If I had a mammogram with a thyroid shield, do I need to repeat it?*

**A:** No. The technologist took the necessary measures (e.g., repeated the exam) so that the images obtained allow the radiologist to make a diagnosis.

**Q:** *Am I at risk of developing thyroid cancer if I had a mammogram?*

**A:** All imaging exams requiring the use of X-rays increase the risk of developing cancer. However, when an exam is necessary, the benefits of having the exam must

outweigh the risk, as is the case with mammography exams. During this exam, the indirect dose received by the thyroid gland is **exceptionally low**, since the thyroid gland is never directly exposed to radiation.

**Q:** *Can I request to have a thyroid shield anyway during a mammogram?*

**A:** The *Ordre des technologues en imagerie médicale, en radio-oncologie et en électrophysiologie médicale du Québec* demands technologists **not to use the thyroid shield during mammography** examinations in order to maintain the quality and accuracy of the required images and, thus, to avoid repeating the exam. The technologist is obligated to follow the guidelines issued by his or her professional order.

(1) «Mammographie et cancer de la thyroïde: le cache thyroïde est-il recommandé?», article published in the EchoX magazine in September 2011, by Gilbert Gagnon, m.i.t.(E), consultant in radiation protection.

(2) [www.car.ca/uploads/about/201106\\_ps\\_car\\_thyroid\\_shield.pdf](http://www.car.ca/uploads/about/201106_ps_car_thyroid_shield.pdf)

(3) [www.acr.org/~media/ACR/Documents/PDF/QualitySafety/Resources/Breast%20Imaging/ThyroidStatement.pdf](http://www.acr.org/~media/ACR/Documents/PDF/QualitySafety/Resources/Breast%20Imaging/ThyroidStatement.pdf)

(4) Image taken from [www.AuntMinie.com](http://www.AuntMinie.com)