

Stopping Compressions Could be the New Progression

What is cancer ?

- Cancer is defined as a disease in which certain parts of body's cells grow rampantly and can spread to other parts of the body. .(Hester, Hortobagyi, & Lem (2021)

Where do cancer cells originate?

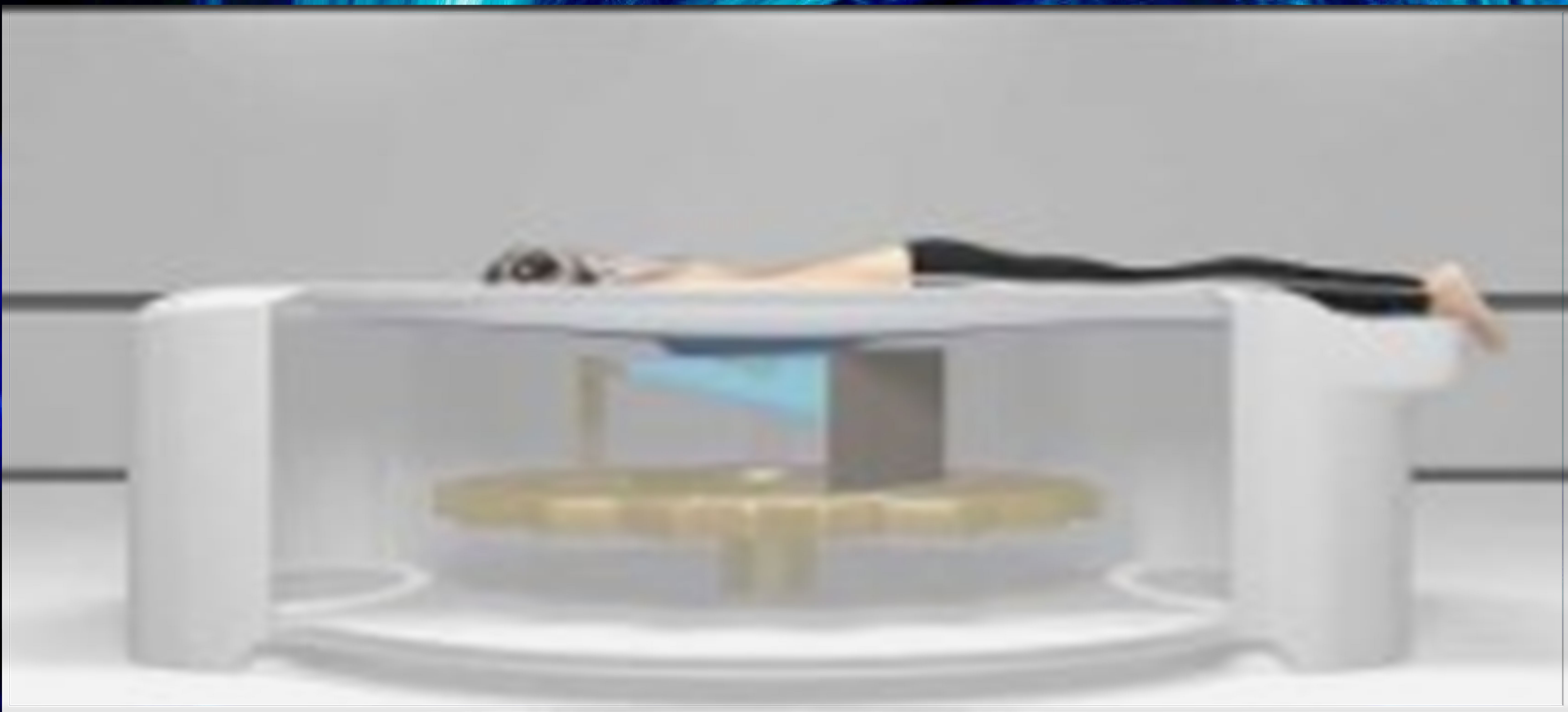
- Cancer cells can start almost anywhere in the human body. (Hester, Hortobagyi, & Lem (2021)
- Cell division is the processes of how human cells form, grow, and multiply. These cells may form tumors, which are lumps of tissue.

What are tumors?

- Tumors can be cancerous(Malignant) or noncancerous (benign).
- The second most common malignancy in women is **Breast cancer** for both the US and worldwide; about one in eight women will be diagnosed with it at some point in her life.(Hester, Hortobagyi, & Lem (2021)

What is Koning Breast CT?

- Koning Breast CT provides isotropically (different directions) accurate images of the breast, allowing for the detection of early-stage cancers with NO BREAST COMPRESSION. The Koning device provides diagnostic and biopsy-guided exams with and without the use of contrast.



I thought 3D mammograms already exist - how is this different?

- Compressional DBT has been marketed as 3D when it is not valid 3D.(Lago et al., 2018)
- DBT utilizes slices of the breast for the radiologist to skim through.
- Additionally, DBT does not produce isotropic images, only slices of the breast, the author stated; the large number of slices in 3D volumes and the limited reading times make it difficult for radiologists to explore thoroughly by fixating with their

Importance of compressions

- If the breast is not well compressed, overlapping tissue can look like a mass or possibly an abnormality (Gaffney, 2022).
- This can cause an increase in the likelihood of a patient getting called back for more images.
- KBCT bypasses the compressions and can still achieve optimal images.

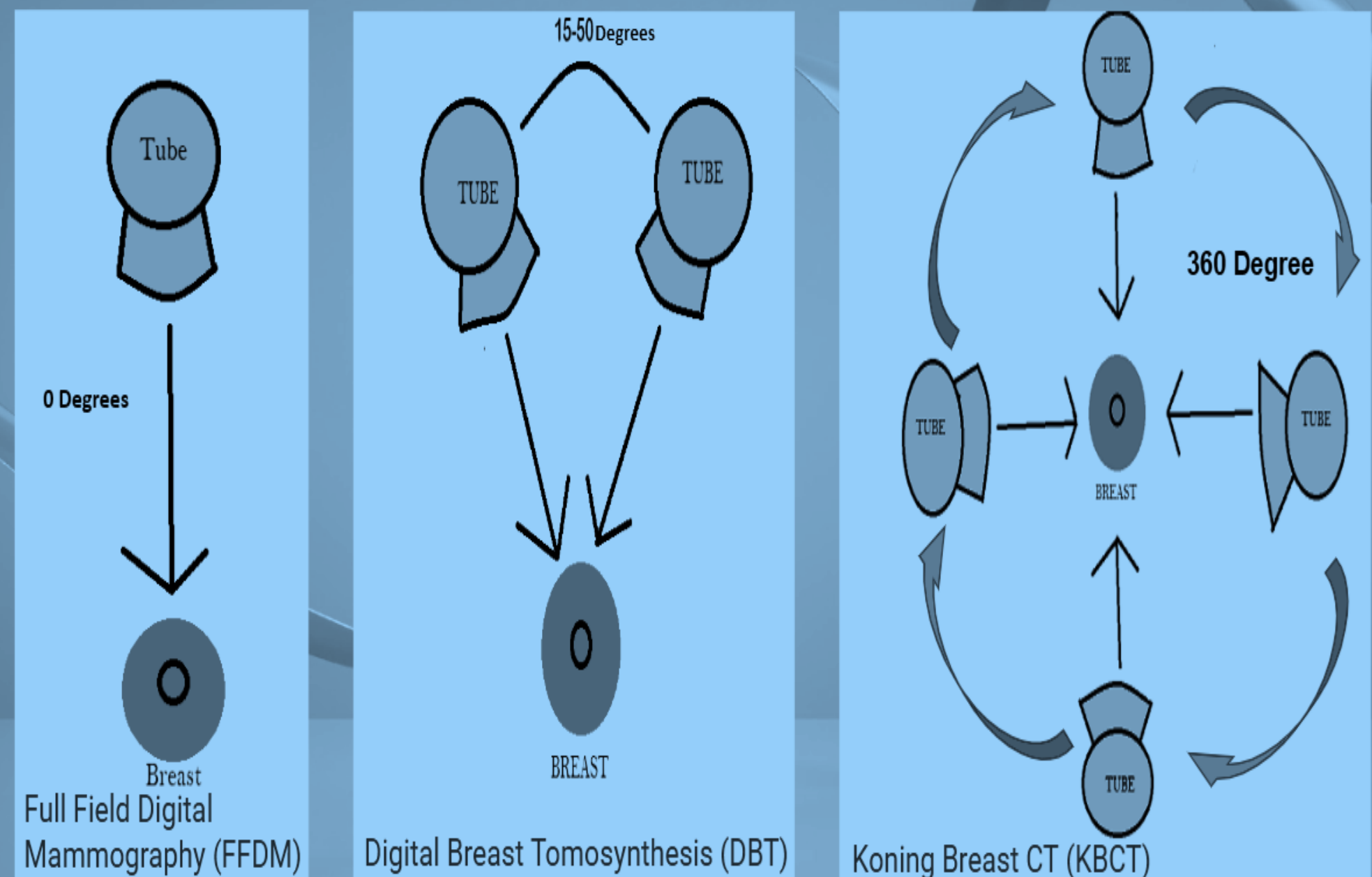
KBCT Compared to Traditional Modalities

	KBCT	Mammography	DBT	Ultrasound	MRI	CT
Real 3D	✓	✗	✗	✗	✓	✓
No Compression	✓	✗	✗	✓	✓	✓
Low Radiation	✓	✓	✓	✓	✓	✗
Detects Small Tumors	✓	✗	✗	✓	✗	✗
Safe Contrast Enhancement	✓	✗	✗	✓	✗	✓
Low Implant Rupture Risk	✓	✗	✗	✓	✗	✓
Detects Calcification Clusters (DCIS)	✓	✓	✓	✗	✗	✗
Density Distribution Management	✓	✗	✗	✗	✓	✓
Spatial Representation of Structures	✓	✗	✗	✗	✓	✗
Low Cost	✓	✓	✓	✓	✗	✗
High Throughput	✓	✓	✓	✓	✗	✗

Statistics



Each Output of a Scan is a 3D Image



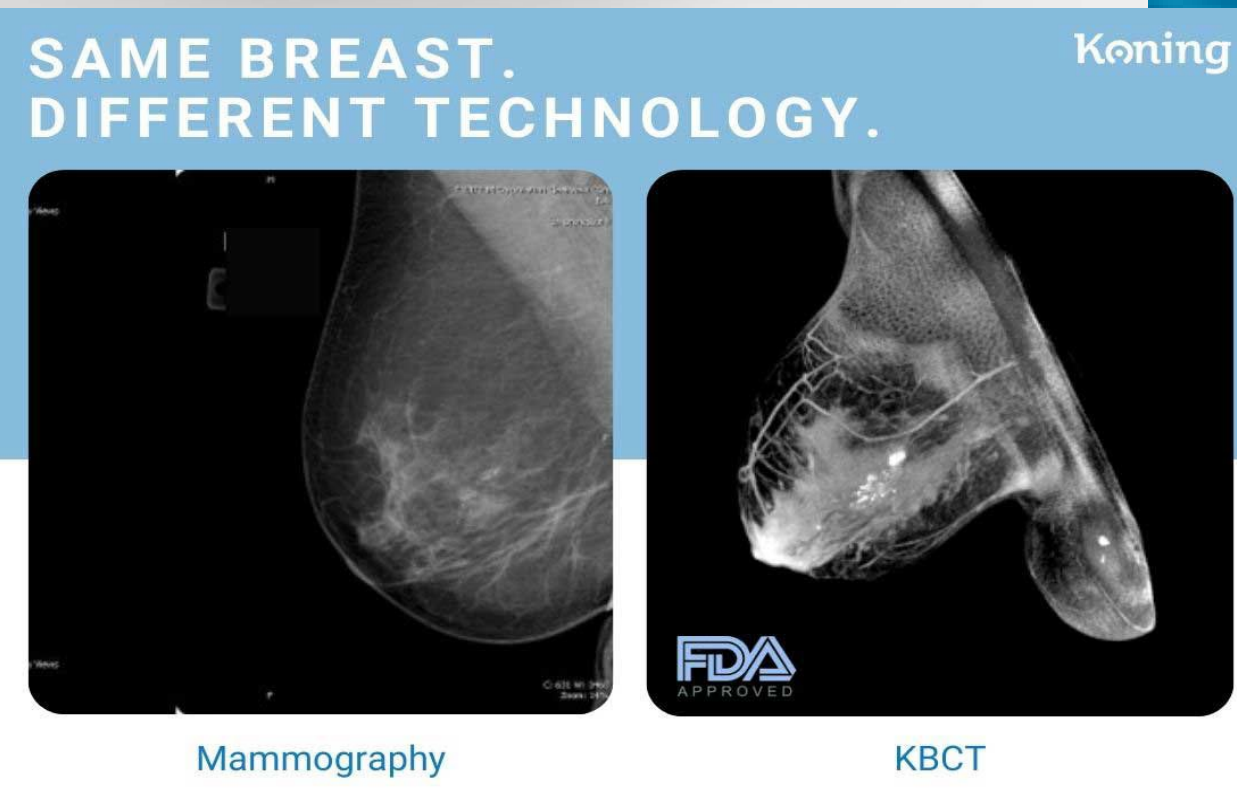
(KBCT)



(FFDM)



(DBT)



Non-contrast

Blood Vessels

Contrast Enhanced

Calcifications

References

Gaffney, B. (2022) Why is compression important during a mammogram? *Baton Rouge Clinic*
<https://batonrougeclinic.com/why-is-compression-important-during-a-mammogram/>

Hester, R. H., Hortobagyi, G. N., & Lim, B. (2021). Inflammatory breast cancer: Early recognition and diagnosis is critical. *American Journal of Obstetrics and Gynecology*, 225(4), 392–396. doi:10.1016/j.ajog.2021.04.217

Lago, M. A., Abbey, C. K., Barufaldi, B., Bakic, P. R., Weinstein, S. P., Maidment, A. D., & Eckstein, M. P. (2018). Interactions of lesion detectability and size across single-slice DBT and 3D DBT. *SPIE Digital Library* doi: 10.1117/12.2293873.short?