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Breast Imaging Comparison Charts

A Quick Reference Guide for Patients

Imaging Modalities Comparison

Feature	3D Mammography	Contrast Mammography (CEM)	Koning Breast CT	Breast MRI	Ultrasound
Radiation	0.5 mSv	0.7 - 0.8 mSv	0.7 - 1.4 mSv ⚠️	None ✅	None ✅
Radiation (with breast implants)	1.0 mSv	1.4 - 1.6 mSv	0.7 - 1.4 mSv	None ✅	None ✅
Compression	Required ❌	Required ❌	None ✅	Minimal ✅	None ✅
Time	5-10 min ✅	10-15 min ⚠️	15-20 min ⚠️	30-45 min ❌	15-30 min ✅
Contrast	None ✅	Required (IV) ❌	Optional ⚠️	Usually (IV) ❌	None ✅
Cost	Low-Moderate ✅	Moderate-High ⚠️	High ❌	Highest ❌	Low ✅
Availability	Widely Available ✅	Increasing ⚠️	Limited ❌	Widely Available ✅	Widely Available ✅
Dense Breast Tissue	Good ⚠️	Excellent ✅	Excellent ✅	Excellent ✅	Good ⚠️
Best Use	Routine Screening	Dense Breasts, High Risk	No Compression Tolerance	High Risk, Implant Check	Targeting, Biopsy Guide

Legend: ✅ = Advantage | ❌ = Disadvantage | ⚠️ = Neutral/Variable

⚠️ Important Note About Ultrasound

While ultrasound is excellent for targeting specific areas and guiding biopsies, it is **less recommended** for routine breast cancer screening due to:

- **High user variability** (results depend heavily on operator skill)
- **Elevated false-positive rates** that can lead to unnecessary anxiety and additional testing



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Quick Decision Guide

For Routine Screening:

- **First Choice:** 3D Mammography (lowest radiation, widely available, cost-effective)
- **High-Risk Patients:** Annual CEM or MRI

For Dense Breast Tissue:

- **Good Options:** Contrast Mammography, Koning CT, or supplemental MRI
- **Consider:** Patient comfort, radiation tolerance, availability

Cannot Tolerate Compression:

- **Best Options:** Koning CT or MRI
- **Alternative:** Ultrasound for targeted evaluation only

For Breast Implants:

- **Screening:** Koning CT may offer advantages, or MRI
- **Implant Evaluation:** MRI is gold standard

For Problem-Solving/Diagnosis:

- **Targeting Lesions:** Ultrasound excellent for guidance
- **Enhanced Detection:** Contrast Mammography or MRI
- **Biopsy Guidance:** Ultrasound preferred when feasible



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Key Takeaways

- ✓ **All breast imaging radiation doses are relatively low** compared to natural background radiation
- ✓ **The benefits of breast cancer detection typically outweigh radiation risks**
- ✓ **MRI and ultrasound use no ionizing radiation**
- ✓ **3D mammography remains the standard** for routine screening
- ⚠ **Individual radiation sensitivity varies** - discuss concerns with your doctor
- ⚠ **Radiation doses may vary** between facilities and equipment

This information is for educational purposes and should not replace medical advice from your healthcare provider.