Neurotization Informed Consent

INFORMED CONSENT FOR NEUROTIZATION (NERVE RECONSTRUCTION) WITH IMPLANT-BASED BREAST RECONSTRUCTION

Purpose of the Procedure
Neurotization, also known as nerve reconstruction or sensate breast reconstruction, is a surgical technique performed during implant-based breast reconstruction to restore sensation to the nipple-areolar complex (NAC) and reconstructed breast. Following mastectomy, patients typically experience complete loss of sensation in the breast skin and nipple-areolar complex. Neurotization involves connecting preserved or donor nerves (typically intercostal nerves) to the nipple-areolar complex using direct coaptation or nerve grafts to restore sensory function.

Description of the Procedure
During your breast reconstruction surgery, the breast surgeon and the plastic surgeon will identify and preserve the anterior branch of the lateral intercostal nerve (typically from the 2nd-4th intercostal nerves). The plastic surgeon will then connect this nerve to the nipple-areolar complex tissue using one of several techniques:
- **Direct nerve coaptation** (connecting nerves directly together)
- **Nerve conduit or allograft** (using a processed nerve graft as a bridge between the donor nerve and target tissue)
The neurotization component typically adds approximately 8-38 minutes to the overall operative time. This procedure can be performed during immediate reconstruction at the time of nipple-sparing mastectomy or during subsequent reconstructive stages.

Potential Benefits
Evidence suggests that neurotization may provide the following benefits compared to standard implant-based reconstruction without nerve reconstruction:
Sensory Recovery:
- **Earlier and superior sensory recovery** compared to non-neurotized reconstruction, with more uniform distribution of sensation throughout the breast
- Improved nipple-areolar complex sensation as measured by objective testing (monofilament testing)
- Studies report a neurotization success rate of approximately 90.6% for achieving some degree of sensory recovery
- Sensory improvement typically begins within 3-6 months and continues to improve over time
Quality of Life Improvements:
- Enhanced psychosocial well-being and emotional functioning
- Improved sexual well-being and physical functioning
- Reduced post-operative breast symptoms including numbness and discomfort
- Higher satisfaction with the medical team and overall reconstruction experience
- Decreased denervation symptoms (symptoms related to loss of nerve function)

Risks and Potential Complications
As with any surgical procedure, neurotization carries potential risks:
Procedure-Specific Risks:
- **Failure of nerve regeneration**: Neurotization may not successfully restore sensation in all patients

- **Partial sensory recovery**: Sensation may return incompletely or may differ from pre-operative sensation
- **Nerve-related pain**: Potential for neuropathic pain or dysesthesia (abnormal sensations)
- **Increased operative time**: Additional 8-38 minutes of surgery time

General Surgical Risks (Common to All Breast Reconstruction):
- Infection
- Bleeding and hematoma formation
- Seroma (fluid collection)
- Wound healing complications and skin necrosis
- Scarring at surgical sites

Implant-Related Complications:
- Capsular contracture (hardening around the implant), with **significantly increased risk** if radiation therapy is required
- Implant malposition, exposure, or failure
- Implant rupture (long-term risk)
- Need for implant revision or replacement
- Breast implant-associated anaplastic large cell lymphoma (BIA-ALCL) - a rare complication
- Breast implant-associated squamous cell carcinoma (BIA-SCC) - a very rare complication

Impact of Adjuvant Therapy:
- Radiation therapy significantly increases the risk of capsular contracture, aesthetic deformity, malposition, implant exposure, infection, and reconstructive failure in implant-based reconstruction
- Chemotherapy timing may affect the reconstruction timeline

Additional Considerations:
- Current evidence shows **no increased risk of perioperative complications** specifically attributable to neurotization compared to standard implant-based reconstruction
- Multiple revision surgeries may be necessary to achieve optimal aesthetic results

Alternatives to Neurotization

You have several alternatives to neurotization with implant-based reconstruction:

1. Standard Implant-Based Reconstruction Without Neurotization
- Shorter operating time
- Spontaneous sensory recovery may occur unpredictably over time, though typically less complete than with neurotization
- May result in lower psychosocial well-being, sexual well-being, and satisfaction scores compared to neurotized reconstruction

2. Autologous Tissue Reconstruction (Using Your Own Tissue)
- Uses tissue from donor sites such as abdomen, back, buttocks, or thigh
- Can incorporate nerve coaptation for sensory restoration
- May provide **superior psychosocial well-being, sexual well-being, and satisfaction** compared to implant-based reconstruction
- Longer operation, hospital stay, and recovery time
- Risk of flap failure and donor site complications
- Permanent scarring at donor site
- Higher initial costs
- May be preferred in patients with prior radiation therapy

3. Combined Implant and Autologous Tissue Reconstruction

- Uses both implant and tissue flap (commonly latissimus dorsi muscle)
- May mitigate some radiation-related complications in previously irradiated patients

4. No Reconstruction
- Mastectomy alone with optimized surgical closure
- Avoids all reconstruction-related risks and complications
- Shorter recovery time
- Option for delayed reconstruction at any future time

Important Information
- Breast reconstruction is **elective** and does not impact cancer recurrence or survival
- The choice of reconstruction should be based on your personal preferences, body characteristics, medical history, smoking status, planned adjuvant therapies, and discussion with your surgical team
- Smoking and obesity increase complication rates for all types of breast reconstruction
- You may require additional revision surgeries regardless of the reconstruction method chosen
- Long-term follow-up with imaging (ultrasound or MRI) is recommended for silicone implant surveillance, typically starting 5-6 years after implant placement and then every 2-3 years

Patient Acknowledgment
I acknowledge that I have read and understand this informed consent document. I have had the opportunity to ask questions about neurotization with implant-based breast reconstruction, and my questions have been answered to my satisfaction. I understand the risks, benefits, and alternatives to this procedure. I understand that breast reconstruction is elective and that I may choose not to undergo reconstruction or neurotization.
I freely and voluntarily consent to undergo neurotization with implant-based breast reconstruction.

_____* _____*
Patient Signature Date

_____* _____*
Witness Signature

«Practice_Name»
«Practice_Phone»
«Practice_Website»

Patient Name:
«Person_First_Middle_Last»

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Breast sensory testing

The best way to observe and track breast sensation over time is to conduct a simple assessment in a standardized fashion at regular intervals during patient visits. After watching these training videos and downloading the printable worksheets, you will be able to prepare patients and perform sensory assessments.

Questions? Contact your local Resensation rep or email info@resensation.com

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Scan to access breast sensory testing tools

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«Practice_Phone»
«Practice_Website»

Patient Name:
«Person_First_Middle_Last»

reconnect with your body

10 minutes, twice a day

Follow these sensory retraining steps after breast reconstruction with Resensation®

1. *Softly tap* different areas of your breast, starting with the center and *slowly* moving outward.

2. Repeat the same circular motion with *continuous pressure.*

3. *Softly tap* different areas of your breast with a soft brush, starting with the center and *slowly* moving outward.

4. Brush in a circular motion with *continuous pressure.*

5. *Softly tap* different areas of your breast with an ice cube, starting with the center and *slowly* moving outward.

6. Trace the ice cube in a circular motion using *continuous pressure.*

7. Repeat the entire process with your eyes closed, visualizing yourself performing each step.

watch the how-to video

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