Resting Tone After Masseteric-Facial Nerve Transfer: A Systematic Review

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Masseteric-Facial Nerve Transfer is effective in restoring dynamic voluntary smile, but its impact on resting facial tone and spontaneous smile may be limited

Introduction

- Facial nerve paralysis significantly affects facial symmetry and function, causing functional and psychosocial impairment.
- Masseteric-Facial nerve transfer is a promising technique to improve outcomes, specifically dynamic smile restoration. However, less is known about its impact on resting facial tone and spontaneous smile.
- The aim of this study was to determine whether Masseteric-Facial Nerve Transfer improves resting facial tone and symmetry.

Methods and Materials

- **Study Design:** PubMed, Embase, Web of Science, and Cochrane library were systematically searched using variations of the following terms:
  - "Facial Paralysis", "Bells Palsy", "Facial Nerve", "Facial Palsy".
  - "Masseteric Nerve", "Masseteric Nerve Transfer", "Masseteric Facial Nerve"

PICO Criteria

- **Population**: Patients with confirmed facial paralysis
- **Intervention**: Masseteric-Facial Nerve Transfer
- **Comparison**: None
- **Outcomes**: Clinician graded scales (Sunnybrook Facial Grading scale, eFACE) and facial measurement

Results

Studies from Databases (n=557):
- PubMed (n=200)
- Embase (n=167)
- Web of Science (n=120)

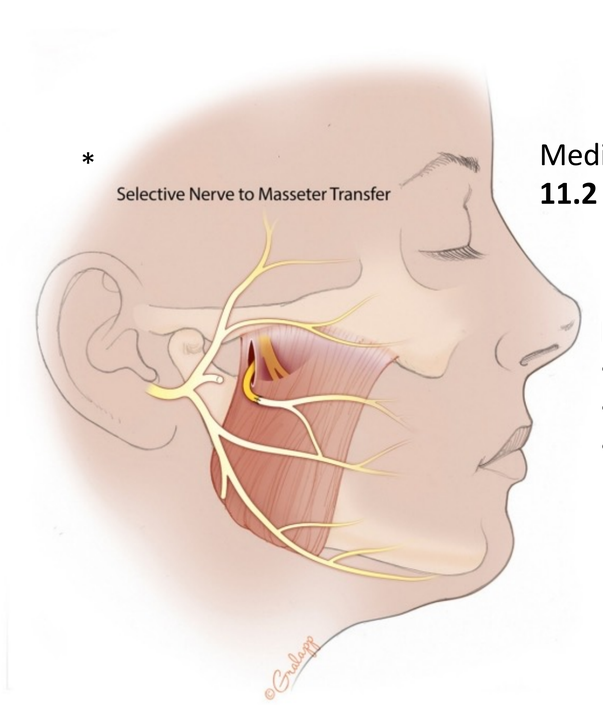
→ Duplicates removed (n=228)

Studies Screened (n=329) → Studies Excluded (n=284)

Full Text Review (n=45) → Studies Excluded (n=35)
- 23 Wrong Outcome
- 9 Wrong Intervention
- 2 No full Text Available
- 1 Wrong Study Design

Studies Included (n=10)

Results



*Masseteric Nerve Transfer Surgery. Stanford Facial Nerve Center. https://med.stanford.edu/facialnervecenter/treatments/reanimation-surgery/masseteric-nerve-transfer.html

Median time from symptom onset to V-VII transfer: **11.2 months** (range: 7.3 – 93.6 months)

Most common physician-graded outcomes used:
- eFACE Static Scores
- Facial Asymmetry Index
- Sunnybrook Facial Grading System (Resting Symmetry)

- Only 2 studies demonstrated statistically significant gains in resting symmetry.
- Most cohorts showed no measurable change in resting tone.
- Subjective improvement in resting tone occurred in select patients.
  - One study found subjective improvements after V-VII transfer while another only found subjective improvement when combined with static suspension.

Discussion

- Overall, findings were mixed, but most found no statistically significant differences in resting tone postoperatively after V-VII transfer.
- Outcomes reported across studies were variable, and therefore meta-analysis could not be performed.
- Future studies should include validated physician-graded scoring or other objective metrics to measure resting symmetry.

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