

# Trigemino-Vocal Reflex (TVR)

The **Trigemino-Vocal Reflex (TVR)** is a recently described neurophysiological phenomenon that may serve as a **potential marker of brainstem functional integrity**. Although still under investigation, it holds promise for clinical use in assessing severely brain-injured or comatose patients.

## Definition

The TVR refers to an **involuntary activation of vocal or laryngeal muscles** — such as phonation or vocal cord movement — triggered by **sensory stimulation in the trigeminal nerve territory**, usually the face (e.g., cheek, forehead).

## Neuroanatomical Pathways

- **Afferents:** Sensory branches of the trigeminal nerve (cranial nerve V), particularly V2 and V3.
- **Central integration:** Brainstem relay, likely involving connections between the **trigeminal sensory nucleus** and motor nuclei controlling phonation, such as the **nucleus ambiguus**.
- **Efferents:** Motor pathways responsible for vocalization, mainly via the **vagus nerve (cranial nerve X)**.

## Clinical Significance

- **Brainstem assessment:** Like other brainstem reflexes (e.g., corneal or oculocephalic reflexes), the TVR may provide additional insight into **brainstem integrity**, especially in ICU or coma evaluations.
- **Prognostic value:** Early reports (e.g., Choi, 2025) suggest that presence of this reflex may correlate with better functional preservation of brainstem structures and **improved clinical prognosis**.
- **Neurophysiological monitoring:** Although not yet standardized, the reflex may have future applications in intraoperative or critical care neuromonitoring.

## Current Limitations

- Lack of standardized protocols for stimulation and response detection.
- Limited number of published studies; evidence remains preliminary.
- Risk of misinterpretation in the context of brainstem automatism or spinal reflexes.

## Conclusion

The **Trigemino-Vocal Reflex** represents a **promising but still exploratory neurophysiological**

**marker.** Its presence may reflect intact brainstem networks and could aid in prognostic evaluation and monitoring in patients with impaired consciousness. Further validation in larger clinical studies is required before routine clinical use.

## Letters

In a [Letter](#) Choi \*et al.\* from the Korea University Anam Hospital, Seoul published in the Journal [Clinical Neurophysiology](#) they proposes a novel “Trigemino-Vocal Reflex” as a potential marker of brainstem integrative function. The concept is introduced, but no data or methodology is shared in this letter format—its validity and clinical relevance remain unproven <sup>1)</sup>.

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### 1. **\*\*Content\*\***

- The paper merely \*introduces\* the term “Trigemino-Vocal Reflex” without specifying stimulation parameters, recording techniques, patient cohort, control populations, or results. - Without any empirical data or case illustration, this contribution feels speculative and lacks evidence.

### 2. **\*\*Tone & Structure\*\***

- Tone is descriptive yet vague; structure follows a bare-bones letter format. - It lacks the usual sections (Methods, Results, Discussion) crucial for neurosurgical interpretation or application.

### 3. **\*\*Accuracy & Rigor\*\***

- Impossible to assess validity—no methodology, no quantitative measures, no reliability information. - We have no idea whether reflex latency/amplitude changes exist, whether they correlate with pathology, or how reproducible these findings are.

### 4. **\*\*Utility for Practicing Neurosurgeons\*\***

- As is, this letter offers zero clinical utility: no guidance for intraoperative monitoring, patient prognosis, or diagnostic use. - The concept might be interesting, but without data it remains academic fluff.

## Verdict

\* **Overall verdict:** Too premature for any clinical integration. \* **Takeaway:** A hypothesis without data—wait for a full study with rigorous neurophysiology. \* **Bottom Line:** Introduces a reflex concept but lacks any actionable content—worth watching, not using. \* **Rating:** 2/10 (interesting concept, zero substantiation).

## Bibliographic Citation

"Trigemino-Vocal Reflex: A potential indicator of brainstem integration", \*Clin Neurophysiol.\* 2025 Jun 14;2110796. doi:10.1016/j.clinph.2025.2110796 Choi, J. (corresponding author) — doongule@gmail.com

### References

<sup>1)</sup>

"Trigemino-Vocal Reflex: A potential indicator of [brainstem integration](#)", \*Clin Neurophysiol.\* 2025 Jun 14;2110796. doi:10.1016/j.clinph.2025.2110796

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