

# The Eye-Tracker Brief Evaluation of Receptive Aphasia: a new tool to assess residual language comprehension abilities in post-comatose patients

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## Introduction

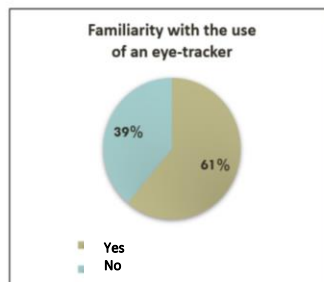
The assessment of verbal comprehension after a coma in patients with severe brain injury seems essential to improve their diagnosis and care. Recently, a specific tool has been developed, the *Brief Evaluation of Receptive Aphasia* (BERA), based on visual fixation responses.<sup>1</sup> Yet judging these fixations by simple observation is often complex and open to interpretation. The use of an eye-tracking setting to accurately and objectively examine eye movements seems the most interesting to improve the sensitivity and reliability of the BERA tool.

## Methods



Based on the Delphi method,<sup>2</sup> we investigated the relevance of an eye-tracker in the assessment of verbal comprehension in post-comatose patients among experts in consciousness disorders, using a computerized version of the BERA assessment (GazePlay-Eval).

## Results



### Feasibility criteria

Content criteria
Clarity
Relevance
Utility
Form criteria
Temporal accessibility
Ease of handling
Adaptability
Restriction of distractors
Objectification of visual fixations
Human factor
Repeatability

- 100% highlight the need for new tools to specifically assess language comprehension in this population
- 100% consider that the use of an eye-tracker is appropriate in this context
- Both assessment duration and visual distractors should be reduced

## Conclusion

The 'eye-tracked BERA' is a promising tool to examine the language profile of post-comatose patients.

Future studies are needed to test and validate the proposed modifications in this challenging population.



<sup>1</sup> Aubinet C, et al. (2021). The Brief Evaluation of Receptive Aphasia test for the detection of language impairment in severely brain-injured patients. *Brain Injury*, 35(6), 705-717.

<sup>2</sup> Letrillart, L., & Vanmeerbeek, M. (2011). À la recherche du consensus: quelle méthode utiliser?. *Exercer*, 99.