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## Introduction

- Orofacial somatosensory inputs modify the perception of speech sounds<sup>1,2</sup>. This is related to the role of somatosensory system in production, transferred to perception through sensory-motor relationships in the human brain. Thus, somatosensory effect in perception may vary based on production ability.

## Aim

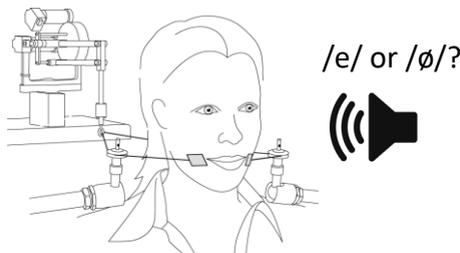
- To investigate the relationships between the somatosensory effect in speech perception and speech production performance.

## Methods

- We examined whether somatosensory effect in speech perception was correlated with production ability in corresponding vowels.
- **Participants:** Nineteen French native speakers.
- **Speech Production Test:** French words, 'Dé' for /e/ and 'Deux' for /ø/ were recorded.



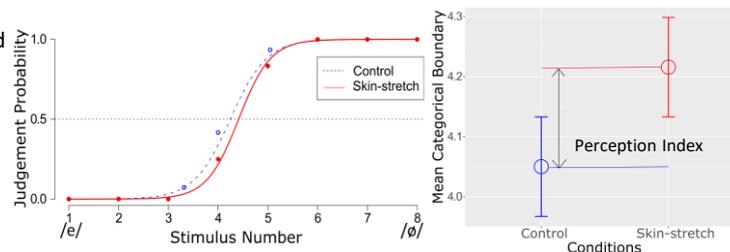
- **Somatosensory effect in speech perception:** Vowel identification test with an 8-member /e/-/ø/ continuum was carried out.
  - Somatosensory stimulation associated with facial skin deformation was applied with the presentation of auditory stimulus.
  - **Perception index:** Difference in categorical boundary between the conditions with and without somatosensory stimulation (Skin-stretch and Control).



Experimental setup with somatosensory stimulation

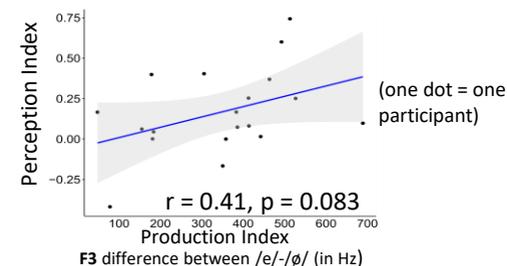
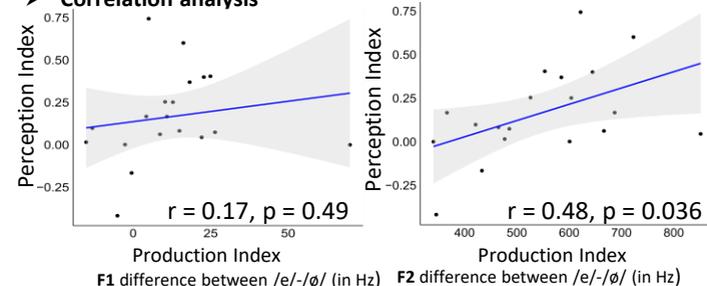
## Results

- **Somatosensory effect on speech perception**



- Orofacial somatosensory stimulation significantly increased the amount of /e/ responses ( $F(1,18) = 7.42, p < 0.05$ )

## Correlation analysis



- A reliable correlation with F2 ( $p < 0.05$ ) and marginal correlation with F3 ( $p = 0.083$ ) but no correlation with F1 ( $p > 0.4$ ).

## Conclusion

- Results indicated that the participants who have a large difference between /e/ and /ø/ showed large somatosensory effect in speech perception.
- Somatosensory effect in speech perception can be ascribed to speech production performance.

## Acknowledgement

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## References

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