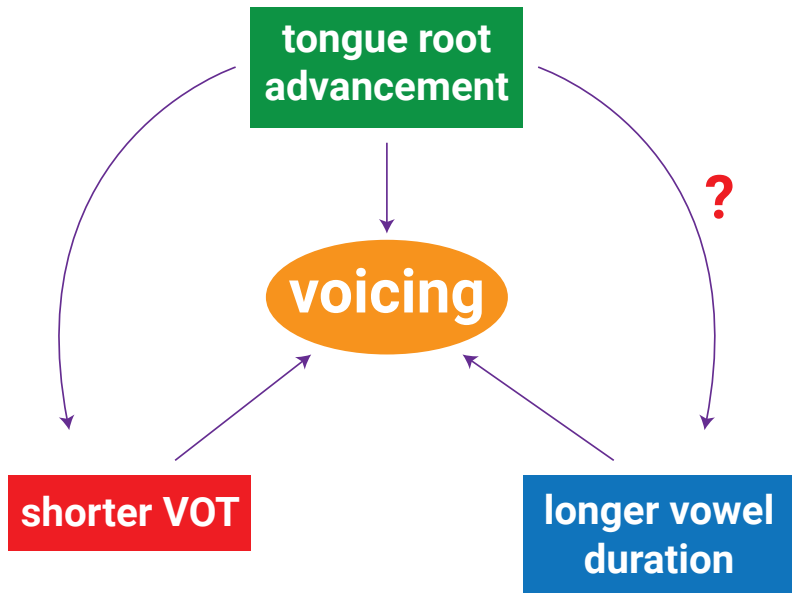


# Tongue root advancement and vowel duration: a gradient effect?

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- $H_1$ : Vowels are longer if followed by voiced stops in Italian, but not in Polish.
- $H_2$ : Italian speakers, but not Polish speakers, produce voiced consonants with tongue root advancement.

- **Participants:** 4 Italians (2 F, 2 M), 4 Polish (2 F, 2 M)
- **Procedure:**
  - simultaneous ultrasound tongue imaging and audio recording
- **Materials:**
  - $C_1V_1C_2V_1$ 
    - $C_1 = /p/, V_1 = /a, o/, C_2 = /t, d, k, g/$
    - *pata, pada, paka, ..., poto, podo, ...*
  - frame sentence
    - *Dico X lentamente*, 'I say X slowly'
    - *Mówię X teraz*, 'I say X now'

## Results: vowel duration

	Estimate	Std. Error	t value
(Intercept)	10.653173	12.203071	0.8729912
c2_phonationvoiced	17.053722	4.395632	3.8796972
c2_placevelar	-8.731278	2.957343	-2.9524065
vowelo	-7.089707	3.623912	-1.9563683
vowelu	-37.492605	3.623586	-10.3468226
sentence_duration	80.856863	6.695451	12.0763877

