

# Longer vowel duration correlates with tongue root advancement in Italian and Polish: An ultrasound study

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## The voicing effect

- shorter vowels before voiceless stops, longer vowels before voiced stops

Heffner (1937);House & Fairbanks (1953);Belasco (1953);Peterson & Lehiste (1960);Halle & Stevens (1967);Chen (1970);Klatt (1973);Lisker (1974);Raphael (1975);Javkin (1976);Maddieson & Gandour (1976);Farnetani & Kori (1986);Kluender et al. (1988);Fowler (1992);Hussein (1994);Esposito (2002);Lampp & Reklis (2004);Warren & Jacks (2005);Durvasula & Luo (2012)

Still no consensus on source!

Several hypothesis:

- production
  - constant articulatory force (Belasco, 1953; Delattre, 1962)
  - durational trade-off (?Lehiste, 1970)
  - laryngeal adjustment (Halle & Stevens, 1967)
  - closing gesture duration (Chen, 1970)
- perception
  - misperception (Javkin, 1976)
  - enhancement (Kluender et al., 1988)

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