Task specific control of tongue movement speed: Additional evidence from Italian speakers

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This paper examines tongue movement kinematics and interarticulator programming in long and short consonants, using native speakers of Italian. Lip and tongue movements were recorded with a magnetometer. There was a robust difference in duration between the long and short consonants. Measurement of the tongue movement between the two vowels in a VCV sequence with a labial consonant showed it to be longer and larger when the consonant was long, but its average speed did not differ. In lingual consonants, the tongue movement during the closure was longer but its average speed lower for a long consonant. These results are very similar to those found for speakers of Japanese, except that the Japanese speakers consistently produced the vowel to vowel movement with a slower average speed in a long consonant. The slower speed of the tongue movement in a long lingual consonant is due to the need to maintain the contact between the tongue and the palate. In no case did the tongue movement stop completely. This most likely follows from a general smoothness constraint on movements. These results provide additional evidence for active, task-dependent control of tongue movement speed in speech.