

Support in scientific literature

1. Researchers have expressed the notions that (i) speech and feeding are similar enough to allow us to assume that both are functions of the **same** mechanical framework, and that (ii) tongue shapes in mastication and speech are identical:

(a) "Although there is a fundamental dichotomy between the referential framework and the methodological approach to studies of the orofacial complex in feeding and speech, it is clear that many of the shapes adopted by the tongue in speaking are seen in feeding. It is suggested that the range of shapes used in feeding is the matrix for both behaviors" [Hiemae and Palmer (2003)], (see citations below)

(b) "The mandibular cycle underlying the speech frame may have been exapted ('borrowed') from the mandibular cycle originally evolved from mammalian ingestive functions—chewing, sucking, licking" [MacNeilage (1998)].

2. It has also been proposed that any **single** element of the mechanism will generate **other** behaviors of the mechanism, and this implies that once the correct framework is produced, the primary elements of speech, correct articulation and phonation, as well as secondary actions of pitch and even phrasing will be automatically enabled:

(c) "Folkins and Kueh [1982] advance the concept of 'bidirectionality', in which they recognize that movement in one part of the system affects all the others" [Hiemae and Palmer 2003].

(d) "Lund and Enomoto (1988) characterize mastication as "one of the types of rhythmical movements that are [sic] made by coordinated action of masticatory, facial, lingual, neck and supra- and infra-hyoid muscles" (p. 49). In fact, this description is apt for speech." [MacNeilage 1998].

Taken together these two ideas infer that mastication and speech will show different **unique measurable** patterns of regional skin voltages reflecting different actions in the underlying muscular frameworks.

Citations

MacNeilage, Peter F. 1998. "The Frame/Content theory of evolution of speech production." Behavioral and Brain Sciences 21:499-546.

Hiemae, Karen M. and Palmer, Jeffrey B. 2003. "Tongue movements in feeding and speech." Crit Rev Oral Biol Med 14(6):413-429.