

NASALANCE IN SPEAKERS OF WESTERN CANADIAN ENGLISH AND FRENCH

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1. INTRODUCTION

Nasalance refers to the relative amount of oral and nasal acoustic energy in speech. It is affected by the amount of phonemic as well as assimilation nasality in an utterance. [1] Nasalance also has been shown to correlate with listener judgements of too little or too much nasality [2]. Thus its measurement has evolved as a clinical procedure that complements perceptual assessments of the resonance disorders known as hyper- and hyponasality. Disorders of resonance, particularly hypernasality, degrade speech intelligibility and may be present in a number of conditions, including neurological disorders and craniofacial birth defects. Resonance also may be affected by severe hearing loss or faulty sensorimotor learning patterns. To facilitate the valid and reliable use of nasalance data in the clinical practice of speech-language pathology, collaborative efforts among centres in North America have begun to accumulate language- and region-specific databases for nasalance in native speakers of English and French using standardized procedures, identical instrumentation and comparable spoken materials [3;4;5]. Healthy males and females aged 9-85+ have been included so that the effects of spoken-language history, regional dialect, sex and age on nasalance may be studied and appropriate normal ranges determined for clinical practice. *The nasalance data reported here were obtained from 458 normal speakers of western dialects of Canadian French and Canadian English.*

2. METHOD

The Nasometer 6200 (Kay Elemetrics Corp.) was used to record native speakers of western Canadian English or French as they read aloud three passages constructed for each language [3], one containing *no nasal phonemes* (#1, Table 1), one reflecting the *natural proportion of nasal phonemes* in everyday speech (#2, Table 1), and one *saturated with nasal phonemes* (#3, Table 1). Percent nasalance was computed according to the formula, [(nasal energy)/(oral+nasal energy)x100]. All participants rated their health as "good" at the time of recording, and were screened to exclude histories of neurological, respiratory, laryngeal or craniofacial disorders, sudden or congenital hearing loss and more than age-appropriate presbycusis. Subjects were recruited from schools, health units and seniors' centres in rural and urban communities in northern Alberta.

3. RESULTS

Results obtained thus far are reported in Table 1 for 306 western Canadian anglophones and 152 western Canadian francophones. The unbalanced nature of the

data set renders interpretation of statistical analyses moot, especially for French, but some trends are detectable. Differences in nasalance are apparent in the data for children (9-13 yrs) and teens (14-19 yrs) versus those for adults; differences among nasalance values for young, middle-aged and old adults (20-44, 45-64 & 65-85 years) are not so noticeable. Small differences between nasalance scores for males and females are apparent in many of the cells.

Table 1: Mean % Nasalance (1SD) values for age, sex, passage and language.

ENG	Sex (#)	#1	#2	#3
9-13	M (27)	9.4 (3.2)	30.8 (4.2)	59.8 (5.9)
	F (31)	10.0 (2.8)	33.2 (3.7)	62.0 (5.2)
14-19	M (37)	10.8 (5.0)	32.9 (4.5)	62.1 (6.4)
	F (37)	10.7 (4.1)	34.6 (4.3)	63.0 (5.7)
20-44	M (31)	11.9 (6.0)	33.6 (6.0)	62.8 (7.4)
	F (31)	10.2 (3.4)	34.0 (3.2)	61.4 (5.0)
45-64	M (25)	12.7 (4.6)	33.9 (5.7)	62.0 (6.6)
	F (35)	12.9 (5.1)	35.3 (5.4)	63.7 (7.0)
65-85	M (21)	12.8 (4.7)	33.3 (5.7)	61.7 (6.6)
	F (31)	13.7 (5.0)	35.4 (5.6)	63.5 (7.6)
FRE	Sex (#)	#1	#2	#3
9-13	M (21)	9.4 (4.2)	24.2 (4.8)	33.1 (6.8)
	F (23)	8.5 (2.2)	24.8 (3.1)	34.3 (4.6)
14-19	M (6)	8.3 (3.6)	23.4 (3.0)	34.3 (2.6)
	F (9)	9.8 (2.4)	26.4 (4.4)	38.7 (6.5)
20-44	M (21)	13.9 (5.3)	28.3 (5.5)	38.6 (7.0)
	F (34)	14.7 (5.8)	30.2 (6.0)	40.5 (6.8)
45-64	M (7)	13.8 (5.5)	27.1 (4.1)	37.1 (5.7)
	F (17)	14.9 (5.1)	31.0 (5.4)	40.7 (6.7)
65-85	M (5)	10.5 (3.0)	24.6 (6.4)	32.0 (5.6)
	F (9)	12.7 (3.1)	27.1 (4.0)	37.2 (6.1)

#1=no nasals; #2=typical balance; #3=loaded with nasals. Passages 1, 2 and 3 for English are known as "Zoo," "Rainbow" and "Nasal sentences," respectively; the French counterparts are "La peur du tigre," "Le petit prince" and "Blanche Neige," respectively. [3]

4. REFERENCES

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5. ACKNOWLEDGEMENT

This research is supported by a grant from the Central Research Fund of the University of Alberta.