

Spontaneous dry swallowing rates in health and stroke

Theurer J^{1,2}, Czachoroswki K¹, Stanbouly S¹, South A^{2,3}, Fisher J⁴, Letsos P³, McCallum C³, Teasell R⁵, V. Hachinski⁶, Martin RE^{1,2,7,8}

¹ School of Communication Sciences and Disorders, University of Western Ontario, London, Ontario, Canada

² Graduate Program in Health and Rehabilitation Sciences, University of Western Ontario, London, Canada

³ Department of Speech-Language Pathology, London Health Sciences Centre, London, Ontario, Canada

⁴ Department of Speech-Language Pathology, Parkwood Hospital, London, Ontario, Canada

⁵ Department of Physical Medicine and Rehabilitation, Parkwood Hospital, University of Western Ontario, London, Ontario, Canada

⁶ Clinical Neurological Sciences, London Health Sciences Centre, University of Western Ontario, London, Ontario, Canada

⁷ Department of Physiology & Pharmacology, University of Western Ontario, London, Ontario, Canada

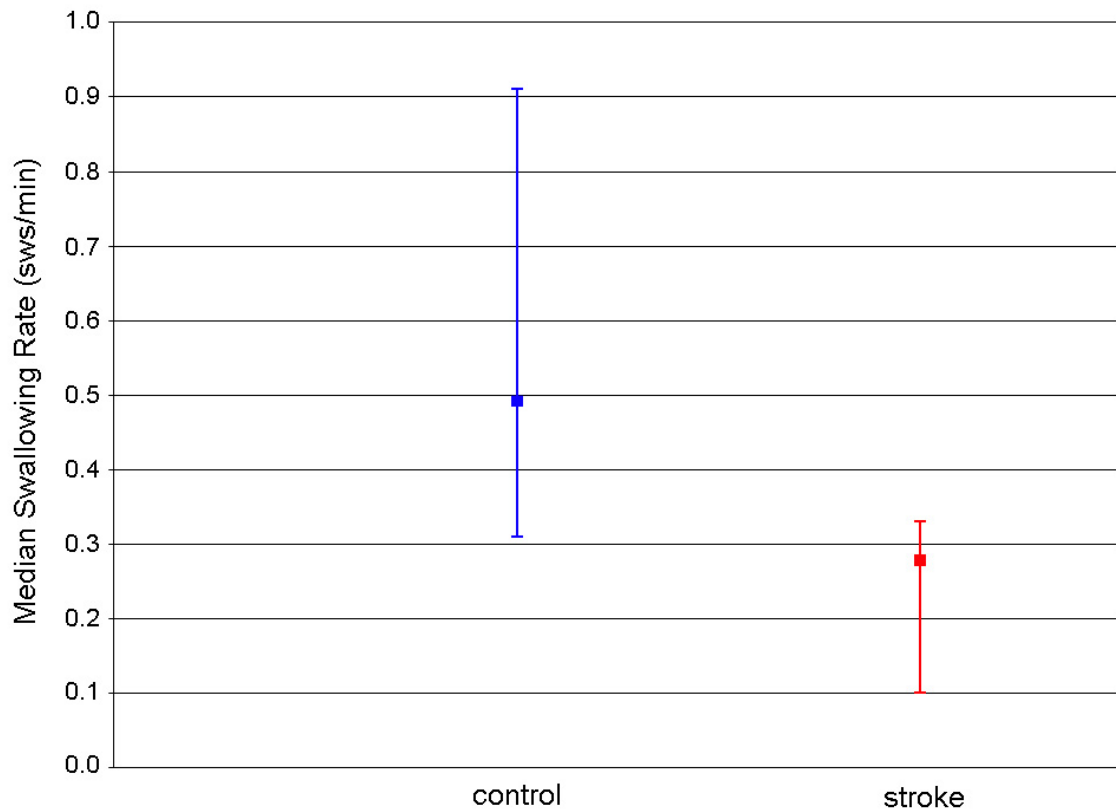
⁸ Department of Otolaryngology, University of Western Ontario, London, Ontario, Canada

Purpose: Few studies have documented spontaneous dry swallowing rates in patients with swallowing impairment. This study compared dry swallowing rates in dysphagic stroke patients and healthy older adults.

Methods: In 19 dysphagic stroke patients (11 males; mean age: 67.4 yrs) and 18 healthy older adults (10 males; mean age: 73.4 yrs), swallow-related laryngeal and respiratory signals were recorded from the output of pressure transducers positioned around the subject's neck and ribcage, respectively, during a 5-minute period. Dry swallowing rates were calculated as number of swallows per minute. Group data were analyzed using a Mann-Whitney U test.

Results: Spontaneous dry swallowing rates ranged from 0.0 to 1.14 sws/min in the dysphagic stroke patients, and 0.0 to 1.6 sws/min in the older controls. Group comparison revealed that the median spontaneous dry swallowing rate among the dysphagic stroke patients was significantly lower than the dry swallowing rate in healthy older adults ($p=0.013$).

Conclusion: Spontaneous dry swallowing rates vary substantially among individuals in both health and disease. Dysphagic stroke patients tend to demonstrate significantly lower dry swallowing rates than healthy older controls. Future research is required to explore the potential relationships between spontaneous swallowing frequency, patterns of swallowing impairment, and responses to swallowing rehabilitation.



Median spontaneous dry swallowing rate for control group (i.e., healthy older adults) and dysphagic stroke patients. Error bars represent 95% confidence intervals.

DISCLOSURES:

Funding: Heart and Stroke Foundation of Ontario Grant-in-Aid (REM), Canadian Institutes of Health Research Proof of Principle Grant (REM), Premier's Research Excellence Award (REM), Focus on Stroke Doctoral Research Award (JAT)