

Ultrasonographic Measurement of Tongue Movement During Swallowing.

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Abstract

Previous ultrasonographic studies on tongue functions were limited by the possibility of artifacts caused by movement of the submental area during function. Consequently, tongue movements were misinterpreted. A dynamic tongue imaging technique, the cushion-scanning technique, was used to overcome this problem. Later, swallowing was investigated and divided into five phases using cushion-scanning technique-aided M-mode ultrasonograms. In this study, cushion-scanning technique in combination with the B-mode and M-mode ultrasonography was applied to investigate and measure the tongue movement during swallowing in 55 normal persons. The average duration, range of motion and speed of swallowing were found to be 2.43 s, 24.06 mm, and 10.34 mm/s, respectively. The computer-aided B-mode plus M-mode ultrasonography in combination with the cushion-scanning technique is a valuable tool for study of tongue functions.