Development of an Ergonomic Nasometer

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ABSTRACT

Degree of nasality is usually evaluated by nasalance measurement for speech assessment or therapy. Nasalance can be obtained by calculating ratio of nasal sound energy and total of nasal-oral sound energy. Nasometer has become a golden standard device to help the therapist to measure nasalance. Nasometer utilizes two microphones separated by metal plate, which are attached to a head gear, to capture nasal and oral sound energy respectively. However, existing device has several disadvantages, including bulky and heavy design, as well as the impracticality to be used without professional guidance outside of hospital. The main objective of this study is to propose and evaluate an ergonomics device to measure nasalance in speech assessment or therapy. New measurement approach is more user friendly and capable to produce a comparable nasalance score to the existing Nasometer. The approach is proposed after determining the best layout and conditions of tool for nasality measurement including microphone position, microphone distance to mouth and nose, separator distance to philtrum, separator material.

Keywords: nasalance, nasality, nasometer, speech