Paper ID: 186

Paper Title: SipClip: An assistive dental device for people with bulbar dysfunction

Abstract: Amyotrophic lateral sclerosis (ALS), a disease characterized by the progressive degeneration of motor neurons, affects over 450,000 people worldwide. People with ALS can lose function of the muscles around their mouths and throats which increases the risk of choking on saliva or other liquids. Due to this risk, people with late-stage ALS often resort to ineffective toothbrushing methods or stop brushing their teeth. This is problematic because it can lead to poor oral hygiene, increasing the risk of aspirating foreign material into the lungs. As a result, the risk of respiratory infections, a leading cause of death for people with ALS, is increased. Presented with this problem by the Duke ALS Clinic, our design team created SipClip, a suction attachment solution for electric toothbrushes to allow users to brush their teeth and suction liquid simultaneously. Preliminary durability and IRB-approved clinical testing at the Duke ALS Clinic is in progress and we have received positive feedback from users with ALS thus far. Results and feedback from these tests are considered in any further modifications of SipClip. We are currently reaching out to dentists, geriatricians, and assisted living homes and have received positive feedback about the potential applications of the SipClip to help those with disabilities. With continued development and testing of our device, we hope that widespread adoption of SipClip will make oral hygiene more accessible to those with ALS and other neurodegenerative diseases.

Author Names: Ashley N Myers, Yoo Bin Shin, Anish Karpurapu, Meena Gudapati, Frank Marinello; Duke University

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