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Motivating patients in home-based swallowing therapy using mobile health applications

Completing rehabilitation regimens with the intensity prescribed by clinicians is crucial to recovery. This is particularly important for patients undergoing treatment for head and neck cancer, who require swallowing therapy to continue eating and drinking. Without therapy, these patients may succumb to malnutrition, dehydration, chest infections, choking and social isolation due to the stigma associated with feeding tubes, drooling and food expectoration. Despite these consequences, access to in-clinic therapy and adherence to home-based treatment regimens are limited. Over half of head and neck cancer patients report not once attempting their prescribed home swallowing exercises.

Our interdisciplinary team is developing a mobile system for swallowing therapy, Mobili-T[®], to improve access to care and engage patients in their own rehabilitation. This system is comprised of a wireless device and a smartphone application (app). The device uses surface electromyography (sEMG) sensors to monitor the activity of swallowing muscles during exercise and provide real-time biofeedback. The design of the app was driven by patients and clinicians. The app also incorporates elements that have successfully been used with other mobile health apps to improve adherence and clinical outcomes. The focus of this talk will be on how our clinic has served as a living laboratory for the development process of Mobili-T[®] from early stages in ideation through to clinical testing. Data from pertinent studies completed on Mobili-T[®] also will be shared.