Synopsis of Original Research Paper

Introduction of an objective index for facial muscle training/stretching using a three-dimensional face recognition iPhone App and its application to rehabilitation for prevention of sequelae of peripheral facial nerve paralysis

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We developed an iPhone app, FacialPalsyZero, which can objectively and quantitatively evaluate facial motion using Apple's three-dimensional facial recognition system, Face ID. We released it on the App Store for free. FacialPalsyZero smoothly displays real-time scores indicating the ratio of the amount of change in five facial regions, including the eyebrow, eye, nose, cheek, and mouth, between maximum movement and the resting state. FacialPalsyZero is a revolutionary application for evaluating facial motor function that is simple, easy to use, and objective. In this study, we assessed the performance of FacialPalsyZero, further upgraded it by increasing the number of BlendShapeLocation items from 7 to 15, introduced Debug Mode, and created FacialPalsyZero+ with high-definition facial motion objective evaluation functions. The results of this study have been reported.

The findings of this study have facilitated the easy and objective evaluation of facial movements. It is anticipated that further enhancements to the accuracy of FacialPalsyZero+ will lead to the replacement of evaluation methods that have traditionally relied on subjective experience with a more objective and quantitative approach. The challenge for the future is to optimize treatment and rehabilitation for the sequelae of peripheral facial nerve palsy. This study would make a significant contribution to the field of cosmetology.