
The outcome of a 20 week expiratory muscle strength training program (EMST) is documented in a patient with early idiopathic Parkinson's disease. A pressure threshold device was utilized and training occurred in the home setting. The training was intensive with a physiologically challenging load specific to the expiratory muscles, adjusted weekly based on the participant's performance. Results indicated that strength, as indexed by the generation of maximum expiratory pressure (MEP), increased by 50% in the first 4 weeks of training, consistent with the average strength increase obtained in previous research. Strength increases continued beyond the traditional 4 weeks of training with a final improvement in MEP of 158% from baseline over the 20 weeks. When the EMST was discontinued for a period of 4 weeks, the participant's MEP decreased by 16% from the 20 week endpoint measurement. The strength training pattern of the expiratory muscles observed in this study was similar to the pattern previously reported for limb muscles.


Rating scales are commonly used to study voice quality. However, recent research has demonstrated that perceptual measures of voice quality obtained using rating scales suffer from poor interjudge agreement and reliability, especially in the mid-range of the scale. These findings, along with those obtained using multidimensional scaling (MDS), have been interpreted to show that listeners perceive voice quality in an idiosyncratic manner. Based on psychometric theory, the present research explored an alternative explanation for the poor interlistener agreement observed in previous research. This approach suggests that poor agreement between listeners may result, in part, from measurement errors related to a variety of factors rather than true differences in the perception of voice quality. In this study, 10 listeners rated breathiness for 27 vowel stimuli using a 5-point rating scale. Each stimulus was presented to the listeners 10 times in random order. Interlistener agreement and reliability were calculated from these ratings. Agreement and reliability were observed to improve when multiple ratings of each stimulus from each listener were averaged and when standardized scores were used instead of absolute ratings. The probability of exact agreement was found to be approximately .9 when using averaged ratings and standardized scores. In contrast, the probability of exact agreement was only .4 when a single rating from each listener was used to measure agreement. These findings support the hypothesis that poor agreement reported in past research partly arises from errors in measurement rather than individual differences in the perception of voice quality.

With age, physical functions decline, which influences respiratory performance. One of the physical changes associated with aging is sarcopenia, a reduction in muscle strength and power. Sarcopenia has been extensively studied in the elderly with regard to limb function but less with regard to respiratory function. Elderly individuals experience reduced muscle mass and strength in respiratory musculature, which may hinder the ability to generate adequate expiratory driving force for both ventilatory and nonventilatory activities. Increasing expiratory muscle strength may enhance an elderly individual's ability to generate and maintain the expiratory driving force critical to cough, speak, and swallow. Previous studies demonstrate that expiratory muscle strength training (EMST) improves ventilatory and nonventilatory functions. This paper discusses the potential impact that EMST can have on the rehabilitation of respiratory muscle decline, particularly in the elderly. This tutorial reviews an EMST paradigm, its physiological underpinnings, and its potential outcomes.