THE INSPIRATORY MUSCLES CAN BE TRAINED DIFFERENTIALLY TO INCREASE STRENGTH OR ENDURANCE USING A PRESSURE THRESHOLD, INSPIRATORY MUSCLE TRAINING DEVICE

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Traditionally resistive training has been used to increase respiratory muscle strength whilst hyperpnea or flow biased training regimes have been utilised to increase endurance (Leith, D.E. and Bradley M. J. Appl. Physiol. 1976; 41(4): 508-516). The present study examined whether resistive loading can train the inspiratory muscles differentially.
Sixteen adults were allocated randomly to either a high intensity (HI) or low intensity (LOW) training group. Both groups used an inspiratory muscle trainer (POWERbreathe®) twice daily for 4 weeks. The HI group trained at a resistance equivalent to 50% of their peak inspiratory mouth pressure (pMIP) for 30 breaths. The LOW group trained at a resistance equivalent to 30% of their pMIP for 200 breaths. Following habituation, measures of respiratory muscle strength and inspiratory muscle endurance were obtained pre-, immediately post-, and also 12 weeks post-training.
Following training the HI group increased inspiratory muscle strength by 31.2% and endurance by 27.8%. The LOW group increased strength by 14.3% and endurance by 29.7%. After 12 weeks detraining subjects in both groups lost only a small percentage of the improvements in inspiratory muscle function. These results demonstrate that pressure threshold resistive inspiratory muscle training can be utilised to train specifically for improvements in strength or endurance and that the improvements are maintained well post-training.

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