

Reply to Engel and Vemulpad

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TO THE EDITOR: We read with great interest the letter to the Editor by Drs. R. Engel and S. Vemulpad (1) bringing to the readers' attention the potential beneficial effects of manual therapy as a nonpharmacological intervention aiming at mitigating dynamic hyperinflation and dyspnea perception.

The findings of our study (5) indicate that active compared with less active COPD patients demonstrate mainly lower end-expiratory abdominal hyperinflation, thereby attenuating further increases in total end-expiratory chest wall volume. This mechanism is associated with lower levels of exertional dyspnea and increased daily physical activity levels.

A nonpharmacological intervention that lowers end-expiratory abdominal hyperinflation is rehabilitative exercise training (4). Manual therapy could potentially constitute another nonpharmacological intervention aiming at altering chest wall mechanics (2) by alleviating chest wall rigidity. Specifically, applying spinal manipulation to the chest wall may cause a stretching effect on the respiratory muscles that can, in turn, induce an improvement in chest wall mobility. Improved mobility of the chest wall could theoretically permit an increase in intercostal muscle length, thereby improving respiratory muscle efficiency and hence exercise tolerance by reducing exertional dyspnea and the likelihood of respiratory muscle fatigue. In addition, reduced chest wall rigidity could promote diaphragmatic mobility by lengthening the apposition zone of the diaphragm (3). Increased diaphragm length would be expected to induce greater diaphragmatic power output secondary to better position of the length-tension relationship, greater descent, and greater expansion of the abdominal wall during inspiration.

Accordingly, manual therapy aiming at improving chest wall mobility and/or promoting diaphragm lengthening, would be beneficial in terms of mitigating dyspnea perception, thus

enhancing daily physical activity levels. By using innovative technology, such as optoelectronic plethysmography, further research is necessary to investigate whether manual therapy sessions can reduce dynamic hyperinflation and increase chest wall mobility by increasing tidal chest wall volumes.

DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS

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