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Immediate Eefect of Manual Therapy on Pulmonary Function and Thoracic Expansion among Emergency Medical Technician: A Quasi Experimental Study

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Introduction: Effective lung function relies on proper airflow, which is regulated by the coordinated movement of the ribcage, diaphragm, and thoracic spine. Emergency Medical Technicians (EMTs) are more prone to neuro-musculoskeletal dysfunctions, especially in the thoracic spine due to heavy weight lifting in awkward postures during shifting, transporting of patients and rescue operations affecting the pulmonary functions. Manual therapy is a holistic approach comprising of joint manipulation and/or mobilisation, neural mobilization, soft tissue release etc. which shows promising effects in improving the pulmonary functions in older adults and in diseased patients.

Aim: To evaluate the immediate effect of manual therapy on pulmonary function and thoracic expansion in EMTs.

Materials and Methods: EMTs having age of more than 18 years were recruited according to the selection criteria. Individuals with any cardio-pulmonary conditions and having contraindication to manual therapy were excluded. Manual therapy was given to participants comprising thoracic manipulation, thoracic and diaphragmatic mobilization. Pulmonary Functions as seen on Forced Vital Capacity (FVC), Forced Expiratory Volume in first second (FEV_1), (FEV_1/FVC), Peak Inspiratory Rate Flow (PEFR), and Forced Inspiratory Vital Capacity (FIVC) were assessed via Spirometry at baseline and immediately post-intervention.

Results: Eighteen EMTs with mean age of 33.61±4.03 years participated in this study. Wilcoxon signed rank test was used to compare the pre and post data. Significant difference was observed in FEV_1 (p=0.001), FVC (p=0.048), FEV_1/FVC (p=0.00), and FIVC (p=0.009) immediately after the manual therapy. No significant difference was observed in PEFR (p=0.647).

Conclusion: The result of the current study conclude that manual therapy is effective in improving pulmonary function among EMTs.

Keywords: Diaphragmatic mobilization, Pulmonary Function Test, Thoracic spine manipulation.