Can regular use of the Cough Assist machine maintain lung function in children and adolescents with neuromuscular disease?

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Question: Does regular use of the CoughAssist maintains lung function in children/adolescents with neuromuscular disease? Design: Prospective pilot observational case-matched cohort trial, combined with retrospective medical record review. Participants: Eight children (seven male) with neuromuscular disease. Intervention: Four children regularly using the CoughAssist were matched by age, height and mobility status with four currently not using the CoughAssist acting as a control group. Participants performed regular spirometry over a four month period using a Vitalograph alpha 6000 spirometer. Outcome measures: vital capacity, peak expiratory flow rate, and peak cough flow measures. Results: Mean age was 13.8 years (range 10-17 years). All required electric wheel chair for mobility. Time series analysis revealed no differences with vital capacity ($p = 0.71$), peak expiratory flow ($p = 0.20$) or peak cough flow ($p = 0.54$) associated with CoughAssist use. Vital capacity, peak expiratory flow rates and peak cough flow readings were all maintained in those regularly using the CoughAssist, while the control group had varied readings. Conclusion: This pilot study has identified that regular use of the CoughAssist may assist maintenance of lung function in the short term in those with neuromuscular disease. These findings warrant substantiation in a larger sample with consideration of using a random sampling methodology.