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**Title:** Are adventitious lung sounds responsive to one session of respiratory physiotherapy?

Ms. Ana 20789 Oliveira alao@ua.pt<sup>1</sup>, Ms. Daniela 20790 Oliveira danielaoliveira@ua.pt<sup>1</sup>, Ms. Cátia 20791 Pinho catiap@ua.pt<sup>1,2</sup>, Mr. João 20802 Dinis joao.dinis@ua.pt<sup>1,2</sup>, Dr. Joana 20803 Neves joana.brneves@gmail.com MD<sup>3</sup> and Dr. Alda 20806 Marques amarques@ua.pt<sup>1</sup>. <sup>1</sup> School of Health Sciences, University of Aveiro (ESSUA), Aveiro, Portugal, 3810 193 ; <sup>2</sup> Institute of Electronics and Telematics Engineering of Aveiro (IEETA), University of Aveiro, Aveiro, Portugal, 3810 193 and <sup>3</sup> Serviço De Medicina II, Hospital Infante D. Pedro, Aveiro, Portugal, 3810 193 .

**Body:** Physiotherapists often use adventitious lung sounds(ALS), i.e., wheeze(Wh) and crackle(Cr), to monitor respiratory techniques in acute obstructive(AO) and restrictive(AR) respiratory patients. ALS are responsive to bronchodilators however, evidence regarding its usefulness in respiratory physiotherapy(RP) is scarce. This study aimed to assess the responsiveness of ALS to one session of RP applied in acute obstructive and restrictive respiratory patients. RP included breathing retraining and airway clearance techniques. Sound recordings were acquired with a digital stethoscope pre/post intervention, following the CORSA short-term acquisition guidelines. Computerised analysis was used to characterise Wh(occupation rate and duration) and Cr parameters(number and two cycle duration-2CD) per breathing cycle(BC). Comparisons were explored with Paired-Samples t-Tests(PASW 18.0). Thirty outpatients(14 males, 55.2±17.8y), diagnosed with AO(exacerbation of COPD, acute bronchitis & asthma;n=18) and AR diseases(pneumonia; n=12) were recruited. A significant decrease for Wh occupation rate(t=4.19, p=0.03) and duration(t=2.35, p=0.04) per BC, in the trachea, was found for AR patients. In all chest locations, the number of Cr per BC, presented a significant increase(t=-2.71, p=0.01) for AO and decrease(t=2.05, p=0.05) for AR patients. No significant differences were found for the 2CD. Both Wh and Cr changed significantly in response to RP. Wh and Cr decrease in AR diseases may be indicative of more airways opened after treatment. Cr increase in AO diseases, suggest movement of secretions to more central airways, allowing more air to pass and leading airways to suddenly open. Further research is recommended.