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Title: Asynchronous breathing movements during slow controlled deep inspiration in chronic stroke patients

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Body: Aim: To assess the asynchronous index of respiratory movements during the slow controlled deep inspiration in chronic stroke patient's and healthy subjects. Methods: Ten chronic stroke patients (experimental group - EG) (53.1 ± 9.2 years) and ten age-matched healthy subjects (control group, CG) (53.6 ± 9.4 years) were studied by Optoelectronic Plethysmography in 3 moments, quiet breathing (QB) slow controlled deep inspiration (DeepI, 3 series/10 repetitions) and recovery quiet breathing (rQB). We measured the phase angle (PhAng), inspiratory phase relation (PhRIB), expiratory phase relation (PhREB) and time of the phase shift between the chest wall compartments. Results: Both groups were similar during the QB and rQB. During DeepI series we observed a distinct behavior between EG and CG, in series 1 to 3 respectively. Time of the phase shift between the rib cage and abdominal compartments during the DeepI series were 0.23 ± 0.2 s vs. 0.15 ± 0.11 s, 0.22 ± 0.2 vs. 0.11 ± 0.1 s, 0.21 ± 0.2 s vs. 0.12 ± 0.1 , $p= 0.037$.

Conclusion: Slow controlled deep inspiration induces more asynchronous breathing movements in chronic stroke patients than healthy subjects.