



## Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 1<sup>st</sup> – 2<sup>nd</sup>, 2019  
Conference Proceedings

International Journal of Exercise Science, Volume 9, Issue 8



### Cardiometabolic, Inflammatory and Physical Inactivity Risk Factors in those with and without History of Pneumothorax

Peyton Paschell,<sup>1</sup> Michael Bruneau Jr.<sup>1</sup>

<sup>1</sup>Drexel University, Philadelphia, PA.

Pneumothorax (PTX), a condition where air builds within the pleural cavity, affects between 1.2 - 35.0 cases per 100,000 population. Although the exact pathophysiology of PTX is unknown, spontaneous rupture of subpleural blebs or bullae have been proposed as mechanisms. Risk factors for PTX include being male, tall, thin, a smoker or living with a preexisting condition. Other factors implicated with pulmonary function, including cardiometabolic and inflammatory biomarkers and physical activity, may heighten the risk of PTX but have not been previously compared nor explored. **PURPOSE:** To determine whether differences in cardiometabolic and inflammatory biomarkers and physical activity exist between those with and without a history of PTX from the (2007-2012) National Health and Nutrition Examination Survey (NHANES). **METHODS:** A total of 170 participants with a history of PTX were compared to those without a history of PTX. Physical characteristics measured included cardiometabolic (blood pressure, heart rate, blood lipids, anthropometrics and body composition) and inflammatory biomarkers (white and red blood cell counts, nitric oxide, hemoglobin and platelets), and physical activity (times and minutes of moderate/vigorous/walking/cycling, and sedentary activity per day/week). T-Tests determined differences in these variables between people with and without a history of PTX. Alpha levels were set *a priori* to  $p < .05$ . **RESULTS:** Significant differences were identified between those with and without a history of PTX for average diastolic blood pressure ( $t=3.82$ ,  $p < .001$ ), total cholesterol ( $t=3.33$ ,  $p < .01$ ), heart rate ( $t=-4.66$ ,  $p < .01$ ), weight ( $t=6.40$ ,  $p < .001$ ), height ( $t=9.15$ ,  $p < .001$ ), lymphocytes ( $t=-2.20$ ,  $p=.028$ ) red blood cell counts ( $t=3.40$ ,  $p < .01$ ), and hemoglobin ( $t=5.65$ ,  $p < .001$ ). No differences were found for physical activity ( $p > .05$ ).

**CONCLUSION:** We found significant differences in cardiometabolic and inflammatory biomarkers in those with and without a history of PTX. Physical activity was similar between cohorts but may have been due to a small number of cases or self-reporting bias. Future studies exploring possible predictors of PTX should consider cardiometabolic and inflammatory risk factors and replicate our findings with larger samples and more objective measures of physical activity.