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**Title:** Exercise-induced bronchoconstriction (EIB) in different periods of training in winter sports athletes, relationship with respiratory NO production

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**Body:** Skiers aged 12 – 19 were studied in precompetitive (n=78) and competitive (n=92) periods. Pulmonary function test was analyzed at baseline and 1, 5, and 10 minutes after the training or competition at subfreezing temperature. FeNO was measured in the exhaled air pre and between 1 and 5 min after the exercise. 6,4% and 6,5% of athletes in competitive and precompetitive periods respectively had a post exercise decrease in FEV1 of  $\geq 10\%$ . Pre- and post-exercise FEV1, PEF, MMEF25-75 were significantly higher in EIB-negative athletes. Baseline and post exercise FeNO levels were 12,6 ppb and 10.4 ppb, respectively, in precompetitive period; 15,8 ppb and 13,9 ppb in competitive phase. Most athletes had a post exercise decrease in FeNO (64.1% and 73.9% of athletes in competitive and precompetitive periods, respectively). Gender differences in exhaled NO level changes after the exercise testing were determined in competitive period (-10.6% in males and +28.3% in females). In athletes with the decreased post exercise FeNO level the mean change was -27.6% from the baseline, in contrast to +47,2% increase in those who had a post exercise FeNO level unchanged or increased (precompetition). The same tendency was noticed during the competition phase. We found the following correlations between post-exercise FeNO and baseline absolute FEV1 ( $r=0.33$ ;  $p<0.01$ ); post-exercise FeNO and baseline absolute MMEF25-75 ( $r=0.36$ ;  $p<0.01$ );  $\Delta$ FEV1% and  $\Delta$  MMEF25-75 1 min post exercise ( $r=0.8$ ;  $p<0.01$ ). The present study revealed EIB prevalence in skiers and allowed to assume a role of FeNO in lung function and EIB in winter sports athletes.