

## Freeflowmetry – the proposal of the new method of evaluation of the respiratory function phenotype.

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**Introduction:** Freeflowmetry is the new method of air flow and air volume measurement during forced and free breathing through the mouth or nose. Application of tight silicone mask connected with dPP<sup>®</sup> pneumotachograph allows adaptation of the natural resistance of the oral cavity in order to reduce the airway collapse.

**Aim:** The aim of the study was to compare the results of examination performed with dPP<sup>®</sup> pneumotachograph with mouthpiece, with the results of examination performed with dPP<sup>®</sup> pneumotachograph with silicone mask.

**Method:** The examinations were performed using PNEUMO<sup>®</sup> PC spirometer [abcMED, PL] in healthy volunteers: 12 females in age 17±1 and 8 males in age 19±1.

### Results: spirometric method

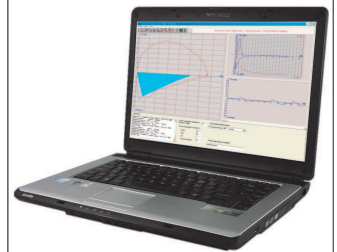


dPP<sup>®</sup> pneumotachograph + mouthpiece

### Results: freeflowmetric method



dPP<sup>®</sup> pneumotachograph + silicone mask

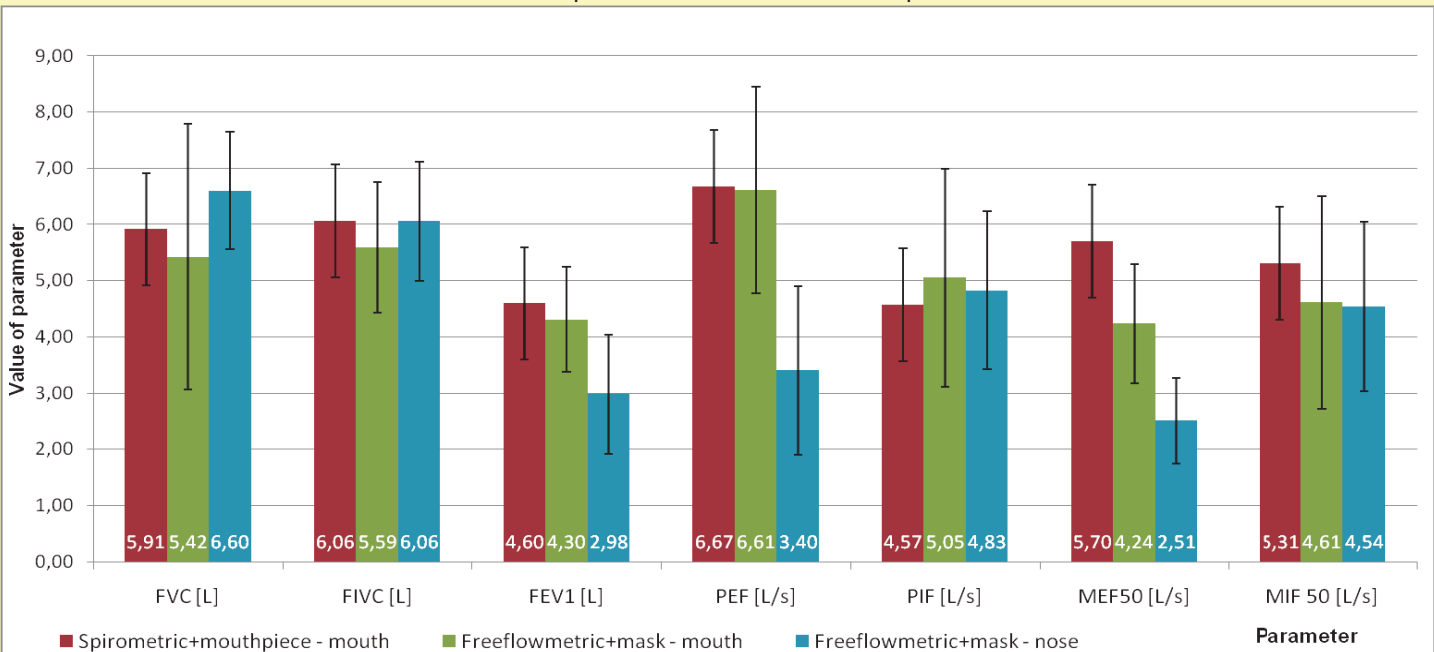


IN/EX through	mouth	mouth	nose
Test	A	B	C
FVC [L]	5,914±1,003	5,424±2,363	6,600±1,041
FIVC [L]	6,059±1,177	5,589±1,162	6,057±1,057
FEV1 [L]	4,596±0,981	4,304±0,934	2,978±1,062
PEF [L/s]	6,674±1,657	6,605±1,835	3,403±1,499
PIF [L/s]	4,573±1,184	5,051±1,933	4,826±1,402
MEF50 [L/s]	5,698±1,772	4,236±1,057	2,509±0,764
MIF 50 [L/s]	5,305±1,770	4,611±1,886	4,544±1,505

SSD P<0,05

FVC: B/C; FEV1: A/C, B/C, B/C; PEF: A/C, B/C, B/C; MEF50: A/C, B/C, B/C

### Influence of method of examination on results of spirometric and freeflowmetric parameters.



**Conclusion:** Further studies are required for the comparison of freeflowmetric test results before and after physical exercise and before and after application of bronchodilator. Freeflowmetric examination can contribute to the optimization and individual adaptation of treatment by the determining of the phenotype of bronchial obstruction and/or airway collapse in common diseases such as COPD and asthma.

### METHOD OF FREEFLOWMETRIC MEASUREMENTS [examination can be done after application bronchodilators]



Expiration through the open mouth



Expiration through the partially closed mouth



Expiration through the nose