

**METHODS OF PULMONARY FUNCTION TESTING
IN THE DIAGNOSIS AND MONITORING OF CHRONIC
OBSTRUCTIVE LUNG DISEASE (SPIROMETRY,
BODYPLETHISMOGRAPHY, DLCO)
ACCORDING UPDATED GOLD-2024**

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Abstract

Pulmonary function testing (PFT) is an integral component in the diagnosis of broncho-obstructive diseases. Spirometry is a mandatory method of pulmonary research, and chronic obstructive pulmonary disease (COPD) is the only respiratory nosology, the diagnosis of which is based on a change in functional indicators, which are measured precisely with the help of spirometry.

With the help of spirometry, only the obstructive type of PFT violations can be clearly determined. But one can also suspect restrictive and mixed (presence of both restrictions and obstruction) types. To diagnose these disorders, an indicator of Total Lung Capacity (TLC) is required, which cannot be determined by spirometry, as it consists of TLC and Residual Lung Volume (RES), which is also not determined by spirometry.

More complex and less widespread methods of investigation can determine these missing indicators: bodyplethysmography — it is a method of a wider study of lung volumes and capacities and makes it possible to measure general and specific bronchial resistance (R_{tot} , sR_{aw}). It is not an indispensable condition for confirming obstructive disorders, but it can be useful for identifying underlying diseases and their functional consequences — an increase in TLC, RV or RV/TLC above the upper limit of normal variability allows to suspect the presence of emphysema, severe bronchial asthma, and also to assess the severity hyperinflation.

Another important study for a more complete assessment of PFT — diffusion capacity of the lungs for carbon monoxide (DLCO); performed after forced spirometry (determination of FVC, VC) or bodyplethysmography (VC) and determination of the structure of static volumes. It is used in patients with restrictive and obstructive diseases, for the diagnosis of emphysema or pulmonary fibrosis. With the help of this study, the diffusion capacity of the lungs (DLCO) and the alveolar volume (V_a) are determined.

The article presents the results of research in which these methods were used and provides justification for their application.

Conclusion. Different methods of PFT are important and complement each other in clinical practice

Key words: chronic obstructive pulmonary disease, diagnosis, spirometry, bodyplethysmography, diffusion capacity of the lungs, Global initiative chronic obstructive pulmonary disease (GOLD).

Ukr. Pulmonol. J. 2024;32(1):24–31.

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