

## LATE CONSEQUENCES OF RESPIRATORY SYSTEM BURN

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**Aim:** Burn inhalation has negative effects on pulmonary function and may result in whole airways (damage or dysfunction). The consequences of methane explosion are thermal injury of respiratory tract, shock wave, and carbon monoxide intoxication. The aim of this study was to determine changes in the pulmonary function tests (PFTs) after six years of follow up in miners who survived methane explosion.

**Material and methods:** Two groups were examined: 41 miners who were victims of a methane explosion with documented thermal injury of respiratory tract and 25 healthy miners who served as controls. PFTs were repeated after six months and six years in 33 study subjects and in 16 controls. The study included static and dynamic lung volumes and diffusing capacity for carbon monoxide (DLco).

**Results and conclusions:** The mean values of PFTs were within normal range in both examined groups both six months and six years after the injury. A significant decrease of DLco was noted in the burn victims (98.4% vs. 85.4%) after six years' observation, but not in the control group. In controls we observed a significant decrease in FEV<sub>1</sub> (96.4% vs. 83.4%) – over six years. A reduction of diffusing capacity can be associated with thermal lung injury. This phenomenon has an impact on the process of gas exchange and may be one of the reasons for breathing discomfort emergence in these patients. The significant decrease of flow rates in controls is more due likely to smoking and heavy pollution of working environment.