

# Metabolic syndrome biomarkers predict lung function impairment after exposure to WTC dust

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Metabolic syndrome biomarkers predict subsequent decline in lung function after particulate exposure, according to new research involving rescue personnel exposed to World Trade Center (WTC) dust.

In a nested case-control study of 327 non-smoking FDNY 9/11 rescue workers, [metabolic syndrome](#) biomarkers measured within six months of exposure to WTC dust predicted decline of forced expiratory volume in one second ([FEV1](#)) over the next six years.

"Study participants with dyslipidemia, elevated heart rate or elevated leptin levels had a significantly increased risk of developing abnormal [lung function](#) during follow-up," said Anna Nolan, MD, MS, assistant professor of Medicine and [Environmental Medicine](#) at NYU Langone Medical Center. "In contrast, elevated amylin levels reduced the risk of developing abnormal FEV1 levels."

The findings were published online ahead of print publication in the American Thoracic Society's *American Journal of Respiratory and [Critical Care Medicine](#)*.

This case-control study was nested within a larger longitudinally followed cohort. All subjects had normal lung function prior to 9/11. Cases (n = 109) were defined as having FEV1 values below the lower limit of normal at follow-up, while controls (n = 218) were defined as

having FEV1 at or above the lower limit of normal. Biomarkers were available for 71 cases and 166 controls. Lung function in cases continually declined in the median 28 months between baseline and follow-up examinations, while lung function improved in controls.

In a model adjusting for age, race, [body mass index](#) and WTC arrival time, dyslipidemia ([triglycerides](#)  $\geq$  150mg/dL and HDL

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