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제 목	어린이들의 대기 중 입자상물질 노출과 폐기능에 미치는 영향 EFFECTS OF FINE PARTICULATE EXPOSURE ON PULMONARY FUNCTION OF SCHOOL CHILDREN
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The purpose of this study was to assess the exposure to concentrated ambient fine particulates (i.e. PM2.5 and PM10) and to determine whether lung function in children decreases following exposure to particulate air pollutant.

The fine particulate exposure assessments are conducted for 40 days duration the spring season. Daily ambient concentrations of PM2.5 and PM10 are collected at elementary school in Beijing, China. The pulmonary functions such as peak expiratory flow rate (PEFR), FEV1, FVC and FEV1/FVC were studied. One hundred children (50 boys and 50 girls, mean age: 10.4 years old) were participated in this study. The levels of PEFR in subjects were measured 3 times a day for study period. Inference on the air pollution and time effects of PEFR data were used by the mixed-model after adjustment of weather information such as temperature, humidity and atmospheric pressure.

Daily mean concentrations of PM2.5 and PM10 over the PEFR measurement periods were 10.5±4.6 and 12.7±11.1 µg/m3, respectively. The range of daily measured PEFR in this study was 181-505 L/min. The PEFR in the evening was higher than in the morning and noon on the same day. Daily mean PEFR was related with the levels of 24-hour PM2.5 and PM10. The result shows that the increase of fine particulate concentrations (one day lag) were negatively associated with the PEFR.

These results suggest that fine particulates like PM2.5 and PM10 are statistically significant predictors for pulmonary function such as PEFR. Therefore, the levels of PEFR might be utilized as health effect indicator of fine particle air pollutants exposure.