

Long-term Effects Of Work Cessation On Respiratory Health Of Textile Workers: A 25-year Follow-up Study

J. Shi¹, A. J. Mehta¹, J. Hang², H. Zhang³, H. Dai², L. Su¹, E. A. Eisen⁴, D. C. Christiani⁵

¹Harvard School of Public Health, Boston, MA, United States of America, ²Shanghai Putuo District People's Hospital, Shanghai, China, ³Shanghai Putuo District People's Hospital, Shanghai, China, ⁴University of California Berkeley School of Public Health, Berkeley, CA, United States of America, ⁵Harvard School Of Public Health, Boston, MA, United States of America

Rationale: The degree to which chronic respiratory health effects caused by exposures to cotton dust and endotoxin are reversible after cessation of exposure is unknown.

Objectives: To investigate changes in lung function and respiratory symptoms following cessation of exposure to cotton textile dust and endotoxin, and whether past exposure and smoking history modify these associations.

Methods: A prospective cohort study consisting of 447 cotton textile workers and 472 referent silk workers, followed-up for 25-years in Shanghai, China. Spirometry testing and respiratory questionnaires were conducted at 5-year intervals. Generalized estimated equations (GEE) were used to model average 5-year change in forced expiratory volume in 1 second (FEV₁), and the prevalence odds ratios of respiratory symptoms, after adjusting for covariates such as age, gender, height and smoking.

Measurements and Main Results: Years since cessation of exposure was positively associated with 9.67ml/yr gain in 5-year FEV₁ change in combined cotton and silk workers pooled, and with 11.28 ml/yr and 5.58ml/yr gains for cotton and silk workers respectively. Among cotton workers, smokers gained 21.03 ml more FEV₁ per year after cessation of exposure than did non-smokers, and the reductions in risk of symptoms of chronic bronchitis and byssinosis were larger for smokers than for nonsmokers.

Conclusions: Cessation of cotton dust exposure was significantly associated with improvement in lung function improvement and respiratory symptoms. Lung function increased more than linearly with years since cessation of exposure among cotton workers, and linearly in silk workers. For cotton workers, improvement in the rate of lung function loss increased, especially among smokers and among males after cessation, but no differences were observed for smoking status or gender among silk workers.

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