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**Title:** Cross-shift change and subsequent longitudinal changes in FEV<sub>1</sub> in a 6 year follow-up study of wood dust exposed workers

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**Body:** Objective: Cross-shift lung function (LF) changes might predict an accelerated decline in LF. This study investigates the association between cross-shift and annual changes in FEV<sub>1</sub> among woodworkers in a 6-yr follow-up study. Methods: 817 woodworkers and 136 controls participated with cross-shift changes of FEV<sub>1</sub> at baseline and FEV<sub>1</sub> and FVC at follow-up. Height and weight were measured and questionnaire information on respiratory symptoms, employment and smoking habits were collected. Wood dust exposure was assessed from 3,572 personal dust measurements at baseline and follow-up. Cumulative wood dust exposure was assessed by a study-specific job exposure matrix and exposure time. Results: The median (range) of inhalable dust at baseline and cumulative wood dust exposure was 1.0 (0.2-9.8) mg/m<sup>3</sup> and 3.8 (0-7.1) mg\*year/m<sup>3</sup> respectively. Mean (SD) for %ΔFEV<sub>1</sub>/workday and ΔFEV<sub>1</sub>/year was 0.2 (6.0)%, and -29.1 (41.8)ml. Linear regression models adjusting for smoking, sex, age, height and weight change revealed no association between cross-shift and annual change in FEV<sub>1</sub> (table 1). Including different exposure estimates, atopy or cross-shift change dichotomized or as quartiles did not change the results.

Table 1. Linear regression on the association between longitudinal and cross-shift change in FEV<sub>1</sub>

	Longitudinal Δ FEV <sub>1</sub> ml•yr <sup>-1</sup>	
	β ± SE	p
Cross-shift Δ FEV <sub>1</sub> %	-0.38 (0.22)	0.08
Wood dust exposure mg•yr•m <sup>-3</sup> <i>f</i>	-1.54 (0.72)	0.03
Smokers	-10.48 (2.67)	0.00

N=881, Model is adjusted for sex, age, height and weight-gain. *f* cumulative wood dust exposure

**Conclusion:** This study among low exposed woodworkers does not support an association between cross-shift changes and accelerated LF decline.

