

Refid	Author(s)	Title
35	Huang YC, Yang MC	Associations between occupational inhalation risks and FeNO levels in airway obstruction patients: results from the National Health and Nutrition Examination Survey, 2007-2012
36	Pelclova D, Zdimal V, Komarc M, Vlckova S, Fenclova Z, Ondracek J, Schwarz J, Kostejn M, Kacer P, Dvorackova S, Popov A, Klusackova P, Zakharov S, Bello D.	Deep Airway Inflammation and Respiratory Disorders in Nanocomposite Workers
38	Wang H, Duan H, Meng T, Yang M, Cui L, Bin P, Dai Y, Niu Y, Shen M, Zhang L, Zheng Y, Leng S	Local and Systemic Inflammation May Mediate Diesel Engine Exhaust-Induced Lung Function Impairment in a Chinese Occupational Cohort
39	Akpinar-Elci M, Siegel PD, Cox-Ganser JM, Stemple KJ, White SK, Hilsbos K, Weissman DN	Respiratory inflammatory responses among occupants of a water-damaged office building.
40	Meo SA, Alrashed AH, Almana AA, Altheiban YI, Aldosari MS, Almudarra NF, Alwabel SA	Lung function and fractional exhaled nitric oxide among petroleum refinery workers.
41	Hancu BD, Pop M	Assessment of health effects related to fiber glass exposure in fiber glass workers: exhaled biomarkers eCO, FENO and their usefulness in the occupational environment testing

Year of Publication	journal	Exposure/Occupation
2017	Int J Chron Obstruct Pulmon Dis	Subjects aged 20–79 years with exposure to mineral and organic dusts and fumes
2018	Nanomaterials (Basel)	Researchers in composite development of nanoparticles
2018	Toxicol Sci	Diesel exhaust (high levels of PM2.5 and elemental carbon)
2008	Indoor Air	Office workers to indoor air pollution/organic particles, molds
2015	J Occup Med Toxicol	Petroleum refinery products
2013	Clujul Med	Fiber glass

Type of study	Comparator
Cross sectional National Health and Nutrition Examination Survey, US, 2007–2012	Cross sectional National Health and Nutrition Examination Survey, US, 2007–2012
Case control	Exposed/controls (office workers)
Case control	Male Exposed/Male controls (water utility authority)
Cross sectional	All exposed
Case control	Exposed/controls (technicians working at the university, receptionists, secretaries and porters)
	Retrospective

Sample Size	Confounders
13336 persons	Gender, age, socio-economic (education, income level), smoking (pack-years); Exclusions: current chest pain; physically incapable of forced expiration; receiving supplemental oxygen; recent eye, chest or abdominal surgery; personal history of heart attack, stroke or tuberculosis; or recently coughed up blood were excluded. Adults with a personal history of detached retina or collapsed lung were also excluded.
20 researchers and 21 controls	Smoking, alcohol
264: 137 exposed/127 controls	Smoking, age, BMI
207	Non smokers. All results adjusted for age, gender, atopy
112: 56 exposed/56 controls	All results were adjusted for age, weight, height, ethnicity, socioeconomic and demographic status and history of any occupational respiratory hazard. Exclusion: subjects who smoke cigarette or shisha were excluded from the study
All exposed for > 5 years	42

Findings

1. Long-term exposure to occupational hazards carried significantly higher risk for COPD than controls (ORs for mineral dusts: 2.364, organic dusts: 2.427, exhaust fumes: 2.728, other fumes: 2.144).

2. In subgroup with FeNO \leq 50 ppb, COPD correlated positively with long-term exposures to organic dusts, exhaust fumes and second hand smoke.

3. In subgroup with FeNO > 50 ppb, COPD correlated negatively with intermediate to long-term exposures to organic dusts and exhaust fumes (ORs 0.058 and 0.210, respectively).

4. After adjusting for demographic factors: age, gender, race, education, marital status, smoking, family income, both intermediate and long-term exposure to organic dusts and exhaust fumes remained strongly correlated with COPD prevalence ($p < 0.05$).

5. After controlling for potential confounders

1. Dyspnea, associated with minor limitations in ordinary physical activity, and chronic bronchitis (as defined by NYHA) were found only in exposed subjects.

2. No difference in baseline values in lung function between cases and with controls. However, the post-shift FEV1, %FEV1, and FEV1/FVC declined significantly in researchers compared to the pre-shift values ($p < 0.05$). No association was found between FeNO, respiratory symptoms, and markers of inflammation in the EBC (LTB4, LTC4, LTD4, LTE4, lipoxins (LXA4, LXB4).

3. FeNO decreased significantly after the shift ($p < 0.005$)

1. FeNO was inversely correlated to diesel exhaust exposure history, after adjustment to age, BMI ($p = 0.044$)

1. No significant relationship between FeNO and prevalence of symptoms in all non-smoking workers.

2. FeNO related to airway symptoms in those with chronic bronchitis. The value of FeNO in the chronic bronchitis group was significantly lower ($p = 0.018$) after adjustments to all covariates.

1. No difference in the mean values of FeNO between the groups ($p = 0.096$), despite a reduction in the obstructive parameters of the spirometry in the exposed group ($p < 0.001$).

Non smokers