

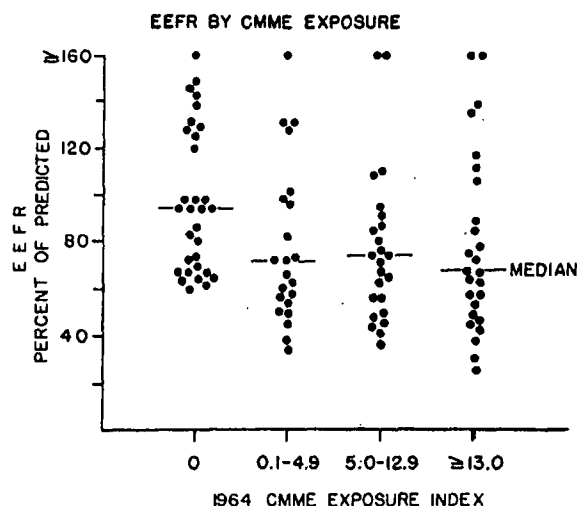


Fig 1. — Scattergram of end-expiratory flow rates as percent of predicted by degree of exposure to chloromethyl methyl ether.

calculate time-weighted average exposure ratings and total exposure times. An exposure index was calculated for each man by accumulating the total exposure as of December 31, 1964, just prior to the time the spirometers were made.

The 103 men were divided into the following groups: 31 with no chemical exposure, 22 with light exposure (index of 0.1 to 4.9), 24 with moderate exposure (index of 5.0 to 12.9), and 26 with heavy exposure (index of 13.0 and over). The men in these exposure groups had similar age distributions; the means and standard deviations were respectively: 42.1 ± 8.9 , 40.6 ± 7.7 , 43.3 ± 9.0 , and 44.5 ± 7.6 . Almost all were white in every group. No information was collected on atopy.

Results

A scattergram of the EEFR measurements as percent of predicted by degree of chemical exposure is shown in Figure 1. Since the distribution was somewhat skewed, the median was determined instead of the mean. There was considerable spread in the values but the median was 94% in the unexposed men compared to 68 to 74% in the exposed groups (Table 1). Thirty-five percent of the unexposed group had values under 75% compared to 54 to 64% of the exposed men. Only one of the unexposed men had a value less than 60% while 33 to 38% of the exposed workers had such low values. There was no obvious gradient in the four groups but comparing unexposed and exposed men, the difference was statistically highly significant for the proportions with values less

Table 1. — The End-Expiratory Flow Rate by Degree of Exposure to Chloromethyl Methyl Ether.						
Exposure Index	No. of Men	End-Expiratory Flow Rate*				
		Median	Under 75%	Under 60%		
			No.	%	No.	%
0	31	94	11	35	1	3
0.1-4.9	22	72	14	64	8	36
5.0-12.9	24	74	13	54	8	33
≥13.0	26	68	15	58	10	38
Total	103	74	53	51	27	26

* as percent of predicted

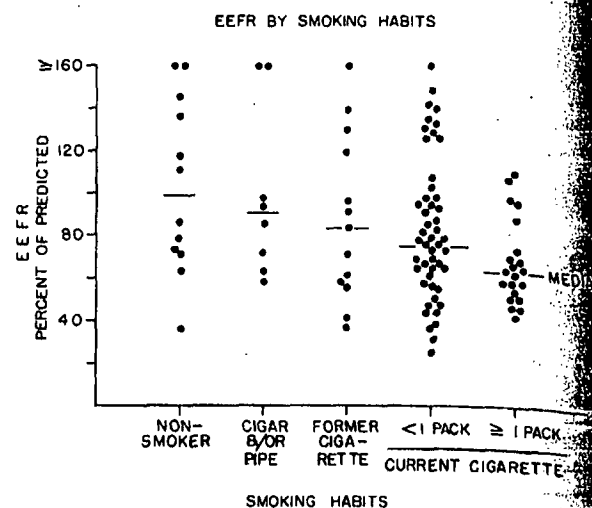


Fig 2. — Scattergram of end-expiratory flow rates as percent of predicted by smoking habits.

than 60% (chi square = 10.48 with Yates' correction, d.f. = 3, $P < 0.005$).

When the 103 men were regrouped according to smoking habits (Fig 2 and Table 2), there was a definite gradient. The median fell from 101% in 12 men who never smoked to 63% in current smokers who smoked one or more packs of cigarettes per day. Exsmokers of cigarettes had a median higher than that of current cigarette smokers but less than that of either cigar or pipe smokers, or both. Similar relationships were seen for the proportion of values below 75% and 60% of predicted except that the proportion of exsmokers of cigarettes below 60% of predicted was the same as that for current cigarette smokers. Comparing men who did not smoke cigarettes (nonsmokers and smokers of cigars and/or pipes), exsmokers of cigarettes, current cigarette smokers of less than one pack of cigarettes per day, and current cigarette smokers of one pack or more per day with respect to the proportion having an EEFR of less than 60%, the differences did not achieve statistical significance (chi square = 5.44, d.f. = 3, $P > 0.10$) but with respect to the proportion having an EEFR of less than 75%, the differences were statistically significant (chi square = 7.90, d.f. = 3, $P < 0.05$).

To determine whether smoking habits had confounded the relationship between EEFR and chemical exposure, the proportion

Table 2. — The End-Expiratory Flow Rate by Smoking Habits.					
Smoking Habit	No. of Men	End-Expiratory Flow Rate*			
		Median	Under 75%	Under 60%	
			No.	%	No.
Never	12	101	4	33	1
Cigar/pipe	8	90	3	38	1
Cigarette	83	73	46	55	27
Current	70	71	40	57	21
<1 pk.	29	74	24	49	12
1+ pk.	21	63	16	76	9
Ex-smoker	13	83	6	46	4
Total	103	74	53	51	27

* as percent of predicted