

Does Smoking Cessation Lead to Weight Gain? The Experience of Asbestos-Exposed Shipyard Workers

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Abstract: We examined the relationship between smoking cessation and weight change in a sample of 373 asbestos-exposed workers who had participated in a smoking cessation program. Those who quit smoking for one year and those who quit for shorter periods gained significantly more weight than those who continued to smoke. Those with initially poorer health and those who quit to avoid illness gained less weight. (*Am J Public Health* 1983; 73:1303-1304.)

Cross-sectional studies¹⁻⁵ and baseline values in prospective studies⁶⁻⁸ show that former smokers (mean = 171.67 lbs, range = 170.00 to 185.5 lbs, N = 5,346) weigh slightly more than current smokers (mean = 163.08 lbs, R = 169.8 lbs, range = 167.5 to 183.7 lbs., N = 6,749); nonsmokers fall between the two (mean = 168.68, range = 167.5 to 178.2 lbs, N = 6,152).

Brozek and Keys followed 42 males for five years.⁹ Those who quit smoking (N = 21) gained 8.2 ± 4.3 pounds while continuing smokers (N = 21) lost 1.1 ± 7.6 pounds. Five other prospective studies^{6-8,10,11} show that former smokers gain more weight (mean = 5.27 lbs, range = 3.8 to 11.7 lbs) than continuing smokers (mean = 1.09 lbs; range = 0.3 to 3.7 lbs.). Hickey and Mulcahy reported the one exception.¹² In a sample of post-myocardial infarction patients receiving dietary counseling, continuing smokers (N = 64) lost 0.2 pounds while quitters (N = 60) gained only 1.6 pounds over the two-year study period.

The present study examines prospectively the relationships between smoking cessation and weight change in blue collar workers. We also studied variables related to weight change in order to shed some light on the processes affecting this relationship.

Materials and Methods

Subjects in this study were asbestos-exposed smokers identified during an asbestos medical screening program

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conducted at a shipyard.^{13,14} The men were 42 ± 10 years old, and had 12.8 ± 3 years of education; 84 per cent were White. The men had smoked 24.4 ± 12 cigarettes per day, and 87 per cent had tried to quit previously.

Subjects completed a medical examination, a 33-item self-report instrument which included questions about demographic characteristics, smoking behavior, knowledge and concern about health risks related to smoking, medical history, and respiratory symptoms. At a second clinic visit, subjects were given the results of the medical examinations and counseled about smoking cessation.¹⁴ Three months later subjects were interviewed by telephone to determine smoking status. Twelve months later subjects returned for a repeat visit, reported how many cigarettes they were smoking currently, and underwent a repeat medical examination.

Subjects were classified as: nonsmokers at 3 and 12 months (n = 13), smokers at 3 and 12 months (n = 322), quit at 3 months but smoking at 1 year (n = 13), and smoking at 3 months but quit at 1 year (n = 25).

Results and Discussion

Long-term quitters and those who had quit smoking for some period during the year gained significantly more weight than continuing smokers (see Table 1).

Figure 1 shows the percentage of workers in each group who fell into various weight change categories. There were

TABLE 1—Weight Changes in Four Groups of Asbestos-Exposed Workers over a One-Year Period

Group	Mean*	Standard Deviation	Range
1. Quit at Three Months and Quit at One Year	+5.15	11.45	-17 to +29
2. Smokers at Three Months, Quit at One Year	+3.76	10.03	-7 to +36
3. Quit at Three Months, Smokers at One Year	+2.76	4.85	-7 to +11
4. Smokers at Three Months and One Year	+0.35	7.53	-35 to +61

*A one-way analysis of variance was significant ($F_{3,369} = 3.17, p < .02$). Orthogonal contrasts compared Group 1 vs Group 4 ($t_{369} = 2.175, p < .03$) and Group 2 and 3 vs Group 4 ($t_{369} = 2.075, p < .03$).

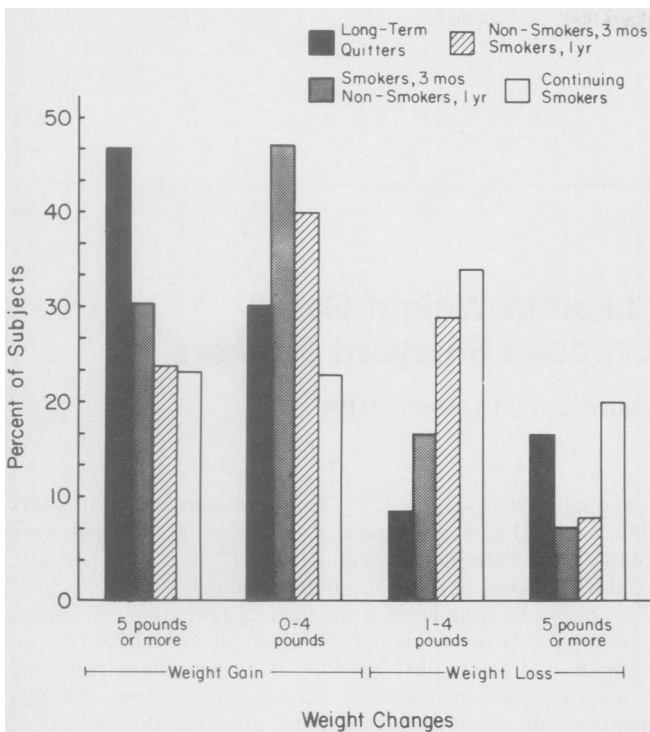


FIGURE 1—Percentages of Subjects in Each Smoking Category Showing Different Amounts of Weight Gain or Weight Loss

more long-term quitters among those gaining 5 pounds or more. There were more who quit either at 3 or 12 months among those gaining 0–4 pounds, while greater percentages of continuing smokers were found among those losing weight.

Several of the responses to questions were correlated significantly with weight change: “I smoke to be sociable” (–.12, $p < .006$); “I have coughed daily for 3 months” (–.18, $p < .003$); “I cough up phlegm when getting up” (–.09, $p < .03$); “I have coughed up phlegm for 3 months” (–.14, $p < .02$); “I walk more slowly” (–.08, $p < .05$); “I am moderately happy with life” (.13, $p < .03$); “I wish to quit smoking to avoid personal illness” (–.14, $p < .002$); “I wish to quit smoking to improve my sense of taste” (–.09, $p < .04$). Table 2 presents the multiple regression solution using these variables; maximum significance was achieved after three steps. Variables relating quitting smoking for health-related reasons were negatively related to weight gain following smoking cessation.

Those quitting smoking for one year showed significantly greater weight gain than those who continued to smoke. Larger percentages of the continuing nonsmokers also appeared in those groups showing greater weight gain. Those with initially poorer health or who quit to avoid illness showed less weight gain.

The findings are consistent with previous studies of

TABLE 2—Multiple Regression Solution Predicting to Change in Weight

Variable	Beta	Multiple Correlations	Simple Correlations	F
Cough Daily for 3 Months	–0.1845	.18	–.18**	8.60
Quit Smoking to Avoid Illness	–0.1678	.24	–.14**	7.25
I am moderately happy with life	0.1323	.26	.13*	4.29

** $p < .01$
* $p < .05$

other populations. While differences among smokers and quitters do exist, the magnitude of the differences should not be exaggerated. There is considerable overlap among the distributions, with some continuing smokers gaining considerable amounts of weight.

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