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# Single-Dose Effect of Marihuana Smoke — Bronchial Dynamics and Respiratory-Center Sensitivity in Normal Subjects

Louis Vachon, M.D., Muiris X. FitzGerald, M.D., Norman H. Solli day, M.D., Ira A. Gould, M.D., and Edward A. Gaensler, M.D.

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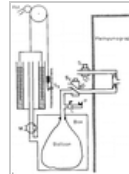


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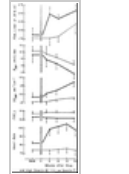
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**FIGURE 1**



Apparatus Used for the Administration of Marihuana.

**FIGURE 2**



Physiologic Measurements at Base Line and at Intervals after Marihuana Smoking.

### Abstract

Normal volunteers with previous marihuana smoking experience inhaled the total smoke from 3.23 mg per kilogram of marihuana, using a bag-in-box technic. Randomly, nine received marihuana containing a high (2.6 per cent), and eight a low (1.0 per cent) concentration of delta-9 tetrahydrocannabinol.

Physiologic variables were monitored before and for 20 minutes after smoking. In the high-dose group the heart rate increased 28 per cent. Concomitantly, airway resistance, measured in a body plethysmograph, fell 38 per cent; the functional residual capacity remained unchanged ( $\pm$  50 ml) throughout, and specific airway conductance increased 44 per cent. Flow-volume loops showed a 45 per cent increase in flow rate at 25 per cent of vital capacity. The low-dose group showed no increase in heart rate but significant, if lesser changes, in airways dynamics. Carbon dioxide sensitivity, measured by rebreathing remained unchanged in both groups.

Marihuana smoke, unlike cigarette smoke, causes bronchodilatation rather than bronchoconstriction and, unlike opiates, does not cause central respiratory depression. (N Engl J Med 288:985-989, 1973)

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