

SMOKING HABIT AND PULMONARY VENTILATION IN ADIVASIS

By

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*The increasing trend of smoking among Indian population has led to a rise in the incidence of respiratory diseases like chronic bronchitis, emphysema and lung cancer. The deleterious effect of cigarette smoking on lung function particularly so on pulmonary ventilation has been established beyond doubt by Wilson *et al.* (5), Aurbach *et al.* (1), Kasliwal *et al.* (3), Carlens (2) and Shaprio *et al.* (4). The present study was undertaken to find out if there was any significant effect of cigarette smoking on pulmonary ventilation among the Adivasi population of Jamshedpur, Bihar.*

MATERIALS AND METHODS

The study was carried out on 150 Adivasi males of 15 to 50 years of age. Only healthy individuals were selected for study. Thorough clinical check up was done *preceding the actual test to exclude any cardiopulmonary disease. Enquiry was made of their smoking habit.*

Vital capacity and maximum voluntary ventilation (Maximum Breathing Capacity) were the tests selected for studying pulmonary ventilation. The apparatus used was a 6 litre recording spirometer of Benedict Roth Type (supplied by Instruments and Chemicals Ltd., India). Three records of vital capacity were taken and the maximum of the three was taken into consideration. Maximum breathing capacity was taken for a period of 15 seconds. After a period of rest a second similar record was taken. From this 15 second record, the volume for 1 minute was calculated. Again the maximum of the two was taken into consideration. All the volumes were corrected to BTPS.

The tests were carried out in the afternoon (2-3 hrs. after lunch) with the subjects sitting comfortably by the side of the instrument.

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RESULTS

The results are given in Table I.

TABLE I

	Vital capacity in Litres (B.T.P.S.)		Maximum voluntary ventilation in litres per minute (B.T.P.S.)	
	Mean	S.D.	Mean	S.D.
SMOKERS	2.79**	±0.48	84.68	±23.33††
NONSMOKERS	3.52**	±0.55	107.60	±25.91††

**t=1.79; P is less than 0.1 and more than 0.05; significant variation.

††t=2.03; P is less than 0.05 and more than 0.02; highly significant variation.

DISCUSSION

The significantly low values of vital capacity and maximum voluntary ventilation in smokers are in keeping with the previous workers.

The low ventilatory efficiency of the smokers may be due to an obstructive change in lungs brought about by harmful effect of cigarette smoke. Aurbach and his colleagues (1) have said that smoking is associated with increase in the size of the mucous glands of the bronchioles as measured by the ratio of depth of the glands to the thickness of the bronchial wall. Smoking causes hypersecretion of mucus and hypertrophy of mucous glands which in turn leads to more secretion of mucus. Thus, probably it is this condition of excessive secretion aggravated by infection that brings about the histological changes in the alveoli. It produces an element of obstruction in the air passages which may be a contributory factor for the low pulmonary ventilatory value.

SUMMARY AND CONCLUSIONS

(1) Pulmonary ventilatory study (vital capacity and maximum voluntary ventilation) has been carried out on 150 male Advasis of 15 to 50 years of age.

(2) The vital capacity and maximum voluntary ventilation have been recorded spirometrically.

(3) The study reveals a significantly low pulmonary ventilation in smokers.

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