

PULMONARY DIFFUSION In a study of 24 normal subjects pulmonary diffusing capacity at rest and at exercise was found to decrease with increasing age. This decrease in pulmonary diffusing capacity is probably explained by a diminution in cardiac output with increasing age. (*Donevan, R. E., and others: Influence of Age on Pulmonary Diffusing Capacity, J. Appl. Physiol. 14: 483 (July) 1959.*)

RESPIRATION CONTROL Using a technique in anesthetized dogs by which either the alveolar carbon dioxide tension or the arterial hydrogen ion concentration can be held constant while the other factor was altered the author studied their effects on respiration. It was found that both infusion of 0.5 M hydrochloric acid and the addition of carbon dioxide to the inspired gas were potent respiratory stimuli and their effects may be considered essentially separate and additive. (*Domizi, D. B., Perkins, J. F. Jr., and Byrne, J. S.: Ventilatory Response to Fixed Acid Evaluated by 'Iso-PCO₂' Technique, J. Appl. Physiol. 14: 557 (July) 1959.*)

PULMONARY FUNCTION The effect of minute ventilation and pulmonary blood flow on the diffusing capacity of the lung for carbon monoxide was investigated at rest and during exercise by steady state methods. Normal subjects were contrasted with patients in whom pulmonary blood flow had been restricted by mitral stenosis. Voluntary hyperpnea and unilateral occlusion of a pulmonary artery were employed to vary ventilation and blood flow independently. Diffusing capacity for carbon monoxide is little influenced by changes in pulmonary blood flow until flow is markedly reduced. Increases in ventilation are associated with increases in diffusing capacity and seem to account for the rise in diffusing capacity seen in moderate exercise. (*Turino, G. M., Brandfonbrener, M., and Fishman, A. P.: Effect of Changes in Ventilation and Pulmonary Blood Flow on Diffusing Capacity of Lung, J. Clin. Invest. 38: 1186 (July) 1959.*)

RESPIRATORY FUNCTION TEST A simple, semiquantitative test for airway obstruction is based on the patient's ability, by

maximal expiration, to extinguish a match held 6 inches from the open mouth. Results of this test can be correlated with those of the one-second vital capacity and the maximum breathing capacity tests. Eighty per cent of the patients with a maximum breathing capacity above 60 liters per minute could extinguish the match, while the same proportion of those with a maximum breathing capacity below 60 liters per minute could not. Eighty-five per cent of those with a one-second vital capacity above 1.6 liters could extinguish the match, while the same proportion with a one-second vital capacity below 1.6 liters could not. Occasionally, patients with restrictive pulmonary disease will give results similar to those found in airway obstruction. Therefore, this test should be used only as a screening procedure; if results are abnormal, more specific tests of pulmonary function should be performed for exact diagnosis. (*Snider, T. H., and others: Simple Bedside Test of Respiratory Function, J. A. M. A. 170: 1631 (Aug. 1) 1959.*)

COMPLIANCE Sixteen patients age 19 to 64 years were subjected to resection of 1 to 8 segments of lung tissue. Compliance was measured preoperatively and postoperatively. When expressed as the percentage of the control value, there was a consistent correlation between the reduction in compliance and the number of segments removed. It is felt that this reduction in compliance is due to a reduction in the number of elastic units participating in ventilation. (*Frank, N. R., and others: Effect of Pulmonary Resection on Compliance of Human Lungs, J. Thoracic & Cardiovascular Surg. 38: 215 (Aug.) 1959.*)

RESPIRATORY UNIT A unit has been set up at the Toronto General Hospital for the treatment of severe respiratory insufficiency. The unit is staffed by a team of 4 physicians (including an anesthetist) and a permanent group of specially trained nurses. Ventilation in all patients treated by the unit is maintained by the technique of intermittent positive pressure respiration, usually through a tracheostomy. The patient's trachea is separated from the nasopharynx by an inflatable cuff around the tracheostomy tube. The establishment of this special hospital unit has resulted in more