Postoperative Human Reaction Time and Hypocarbia during Anesthesia. S. B. WOLLMAN, M.D., and L. R. OKKIN, M.D., *Department of Anesthesiology, Albert Einstein College of Medicine, Yeshiva University, New York, N. Y. Methods:* To study the effect of hypocarbia during anesthesia on postoperative performance of a reaction-time test, 37 selected surgical patients were anesthetized in a manner which does not alter cerebral blood flow at normal Pa_{CO_2} levels. Patients were hyperventilated and variable amounts of CO_2 (0 to 2 per cent) were added to the inspired mixture to obtain steady Pa_{CO_2} values ranging from 12 to 38 mm Hg. *Results:* Twenty patients whose Pa_{CO_2} values were below 24 mm Hg throughout the procedure had postoperative prolongation of reaction time which lasted three to six days. Seventeen patients whose Pa_{CO_2} values were greater than 24 mm Hg did not demonstrate this prolongation. There were no significant differences in age, sex, duration and type of procedure, anesthetic dose, and levels of oxygenation in the two groups which could account for the observed results. *Summary:* Marked hyperventilation during anesthesia is associated with demonstrable postoperative alteration in human reaction time.

Comparison of Effects of Nitrous Oxide, Chloroform and Halothane on Surfactant Function in Excised Dogs' Lungs. S. W. WOO, M.D., D. BERLIN, A.M., and J. HEDLEY-WHYTE, M.B., *Department of Anaesthesia, Beth Israel Hospital, and Harvard Medical School, Boston, Mass. Methods:* To evaluate the effects of anesthetic agents on surfactant function, excised lungs from 36 dogs were exposed to anesthetic gas mixtures using a standardized pattern of ventilation. Serial deflation pressure–volume curves were compared. Ventilation was with either 80 per cent nitrous oxide and 20 per cent O_2, 1.2 per cent halothane in air, 2.4 per cent chloroform in air, or air alone. Ventilation for 30 minutes to maximum lung volume (MLV) was achieved with a constant-volume ventilator. Gases were saturated; intratracheal temperature was 23 C. *Results:* Ventilation with 1.2 per cent halothane or 2.4 per cent chloroform in air led to a significant ($P < 0.01$) reduction in MLV during deflation at transpulmonary pressures from 12.5 to 5 cm H_2O. Identical ventilation of seven lungs with air alone and seven other lungs with 80 per cent nitrous oxide did not ($P > 0.05$) alter their volumes during deflation at any transpulmonary pressure. After 15 minutes' incubation at 37 C, reduction in MLV due to ventilation with halothane was still significant ($P < 0.05$) at transpulmonary pressures from 12.5 to 7.5 cm H_2O. After 30 minutes' incubation these changes had reversed. On incubation after ventilation with chloroform, MLV reverted to control levels more rapidly. Exposure of five lungs to 6.4 per cent chloroform or 8.6 per cent halothane for 20 minutes did not alter their deflation pressure–volume curves. *Summary:* These results suggest that physical interactions between surfactant and anesthetic agents do not affect alveolar stability, but that lipid-soluble anesthetics can depress surfactant synthesis.