

fluctuations in plasma volume during the period of measurement.¹⁵ Presumably, significant determinations will be possible only during periods in which constancy of hematocrit and protein concentration indicates a fair probability of equilibrium in the exchange of fluid between the blood and extracellular spaces.

Summary. 1. Blue dye T-1824, used in the determination of blood plasma volume, passes from the blood stream into the thoracic and cervical duct lymph of normal dogs within the first hour following its intravenous injection. 2. Under normal physiological conditions correction for the escape of dye from the vascular bed can probably be approximated by extrapolating the curve of dye disappearance. Under abnormal and varying conditions application of this correction may be difficult.

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Effects of Cyanide and Iodoacetate on Survival Period of Infant Rats.*

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It has been demonstrated that the infant rat and dog (1-12 days of age) exhibit a tremendous tolerance to anoxia, hypoxia, nitrous oxide, carbon dioxide, cyclopropane, and hypoglycemia.¹ Among the factors permitting prolonged survival in the infant are (1) low cerebral metabolic rate, (2) poikilothermia, and (3) some anaerobic source of energy. In the present experiments we wish to present additional evidence on the third of these possibilities. Rats 1 day postpartum (6 g wt) were given 5 mg sodium cyanide subcutaneously and their survival time, as indicated by respiratory efforts, was noted. Adult rats (150 g wt) given the same dose of sodium cyanide were also studied.

Young rats can tolerate for a long period (50 min) an amount of sodium cyanide, 5 mg, which will cause death in the adult animal in about 10 minutes. Since sodium cyanide is known to inactivate

¹⁵ Magladery, J. W., Solandt, D. Y., and Best, C. H., *Brit. Med. J.*, 1940, 248.

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¹ Himwich, H. E., Alexander, F. A. D., and Fazekas, J. F., in press, *Proc. Am. Physiol. Soc.*, April, 1941.

the oxidase portion of the respiratory system it may be concluded that such huge doses of sodium cyanide inhibit the aerobic processes depending on heavy metal catalysis. The survival period of cyanide is practically the same as that observed in nitrogen. Experiments on excised cerebral tissue of infant and adult rats disclose that N/200 sodium cyanide inhibits 95% of the total oxygen consumption.

Iodoacetic acid, 1 mg., was injected simultaneously in other infant rats. After allowing 15 minutes for absorption half of the total number of injected rats were placed in an atmosphere of nitrogen and the other half retained as controls respiring air. The infant rats which received iodoacetate and were placed in an atmosphere of nitrogen exhibited a survival time of only 3 minutes. Adult animals in nitrogen survived for the same short period. The injected infants breathing air lived for 50 minutes (the duration of the experiment). It seems, therefore, that the inhibition of glycolysis by iodoacetate removes the source of energy which permits prolonged survival in the young. It has been repeatedly demonstrated that the iodoacetic acid inhibits the change from triosephosphoric to phosphoglyceric acid in the anaerobic cleavage of glucose.

Summary. The prolonged survival period of infant rats, despite inhibition of the cytochrome-oxidase system with sodium cyanide, demonstrates the function of an anaerobic source of energy. The rapid death after the injection of iodoacetic acid and exposure to an atmosphere of nitrogen suggests the anaerobic conversion of carbohydrate to lactic acid as the source of this energy.

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Oxygen Saturation of Arterial Blood in Jaundice Complicating Lobar Pneumonia.*

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Jaundice in varying degree was a reasonably common complication of lobar pneumonia in the pre-sulfonamide era. It was usually accorded serious prognostic import, since the mortality was

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