Small amounts of antioxidants, such as hydroquinone, resorcinol or levulose retard the loss of potency in aqueous solution. The hormone can be preserved in 80-95% alcohol for weeks. Cortin is very unstable in the presence of the fixed alkalies. It seems to be completely destroyed by tenth normal NaOH at 20°C. in less than one hour. On the other hand tenth normal NH_4OH under the same conditions has little or no effect. Tenth normal HCl at 20°C. for one hour is without effect. Extraction of the dry residue with water for the final product must not be aided by heat nor must it proceed for a long period because toxic substances are absorbed. An extract made by allowing water to stand on the residue for one hour at 45°C. when injected into adrenalectomized animals caused inflammation and loss of weight.

We have made extracts of whole adrenals by many different methods in an attempt to separate cortin from the toxic substances which develop in the medulla.[5] No method has been found which yields as potent an extract per unit of cortex as does the simple method described. Active charcoal seems to remove both cortin and toxic substances from an aqueous solution (pH 8-6.5). Attempts to elute the hormone have been partially successful. Permutit removes toxic substances and some cortin from an alcoholic solution. Lloyd's reagent removes toxic substances together with some cortin from an alcoholic solution. $Al(OH_3)$ acts in a similar fashion.

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How Intravenous Infusions Modify the Water Contents of Tissues.

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To find what factors influence the exchanges of fluid between blood and tissues, muscles and arterial blood were sampled at frequent intervals before, during, and after various acute procedures upon anesthetized cats and dogs. The percentage water contents of the muscles, and occasionally of other tissues, were determined, and blood concentration was measured in parallel by several methods.

[5] McKinley and Fisher, *Am. J. Physiol.*, 1926, **76**, 268.

When 50 cc. of Locke solution per kilo were infused, the muscle water content remained constant for a few minutes, then suddenly increased by 1 to 8% and promptly returned almost to normal. The dilution of the blood was maintained for a much longer period of time. The only factor measured which varied in parallel with muscle hydration was the mean arterial blood pressure. That blood pressure was more important than blood dilution in regulating the water content of tissues was shown by infusions of gelatin-Locke and of acacia-Locke solutions. In these experiments the blood dilution persisted for at least 3 hours, while the muscle water content returned to normal within one hour.

A remarkable lag occurred in the onset of tissue hydration in all infusion experiments. The water content of muscle began to increase only at 8 to 20 minutes after the blood dilution and the rise of blood pressure had been produced. The hydration reached a sharp peak and fell with a lag of about 10 minutes after the fall of blood pressure.

After hemorrhage the muscle became dehydrated, following the blood pressure with the usual lag. The blood, both as a whole and with respect to plasma proteins, became diluted without any lag. In hemorrhage the composition of the blood was being varied only through exchanges with the tissues, and pressure changes evidently initiated these.

The importance of blood pressure alone in governing the water content of tissues was well illustrated by experiments in which the dorsal aorta was partially clamped, producing low pressures in the hindlegs and high pressures in the viscera and foreparts. In each part the hydration of muscle followed closely the change of mean arterial pressure and returned to normal after the clamp was removed.

The blood cannot be said to possess an excess of effective osmotic pressure, but all forces are in dynamic equilibrium during the maintenance of normal water distribution. When the mean arterial pressure increases 20%, muscles gain between 1 and 2% in water content.

It is concluded that the changes of capillary blood pressure which accompany sudden changes of blood volume may be more important than the changes of blood concentration or of colloidal osmotic pressure in controlling the initial exchanges of fluid between plasma and tissues. The time factor in these exchanges indicates that shifts occur in circulatory or other conditions such that water is successively translocated among various tissues. Undoubtedly changes of blood pressure are accompanied by modifications of blood flow which may induce local differences of oxygen tension and consequent changes of permeability or of hydrostatic pressures.