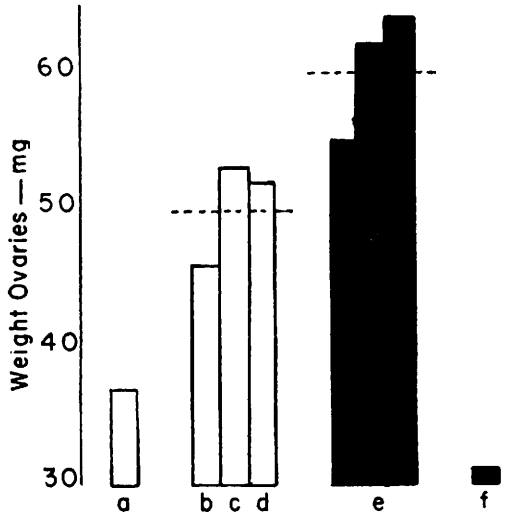

FIG. 1. Rats of column (a) received 750 I.U. of chorionic hormone without a preliminary injection. Rats of succeeding columns received, on day 1, sesame oil (b), cottonseed oil (c), plain water (d), and neostigmine (e), while on day 2 they were given the chorionic hormone. The order was reversed in those of (f), that is, day 1 the chorionic hormone and day 2 the neostigmine.

oil (0.75 cc), cottonseed oil (0.75 cc), and plain water (1.5 cc) respectively on day 1, and their average ovarian weight was 0.50 g. Column (e) is of 3 groups of rats given neostigmine (.075 g in 1.5 cc water) on the first day and shows an average ovarian weight of .060 g, an augmentation of 20% over the controls given injections of inert material on day 1 and of 62% over those not given any preliminary treatment.

In a previous report(2) it was shown that if the order in which the hormones were administered was reversed, namely, the chorionic hormone on the first day and stilbestrol on the second, there was no augmentation of ovarian weight. The same is true of neostigmine (Fig. 1f) for ovaries of only .032 g were found when it was given on day 2 and the chorionic hormone on day 1.

No histologic differences from the changes normally resulting from the administration of chorionic hormone were noted in any of the experiments.

Summary. The preliminary administration of various drugs, hormones, and inert substances such as plain oil or water, may result in a slight augmentation of the ovarian weight induced by chorionic hormone. A striking augmentation, however, has been obtained consistently by the injection of neostigmine on the day before giving the chorionic hormone.

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Effect of Various Plasma Volume Expanders on Erythrocyte Size. (19673)

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Quantitative determinations of acute blood volume changes may be made by studying the deviation from the expected biological decay curve of circulating erythrocytes tagged with P^{32}. In the course of studies following intravenous administration of 6% Dextran, one of us (LMM) observed that blood volume increase estimated in this manner was regularly greater than the increase calculated from the change in the peripheral hematocrit(1). This difference might be reconciled if a change in erythrocyte size or shape could be demonstrated. To determine whether such a change could be induced by Dextran or other plasma volume expanders, an *in vitro* experiment was performed under conditions approaching those *in vivo*.

Method. Venous blood was added to an appropriate amount of "balanced" oxalate, then divided into 4 equal aliquots, each of which was placed in a 125 cc siliconized flask. Because it was estimated that when 500 cc of

TABLE I. Hematocrit determinations and observations of crenation and hemolysis at 0, 30, 60, 120 and 240 min. after addition of isotonic saline or one of the expanders to whole blood. Data are derived from studies on 2 subjects.

	Hematocrit					Crenation		Hemolysis	
Time (min.)	0	30	60	120	240	0	240	0	240
Whole blood undiluted Pt. #1	51	49.5	49	50.5	50.5	0	0	0	3+
Saline & Blood 1:10 Pt. #1	45	45	44.5	44	45.5	0	0	0	+
Dextran & Blood 1:10 Pt. #1	44.5	44	44	44	45.5	0	0	0	+
PVP & blood 1:10 Pt. #1	45.5	45	45	45.5	45	0	0	0	+
Plasma & Blood 1:10 Pt. #2	37.5	36.5	36.5	37	37	0	0	0	+
Gelatin & Blood 1:10 Pt. #2	37	36.5	36	36.5	36	0	0	0	+
Albumin & Blood 1:10 Pt. #2	37	36	36	36.5	36	0	0	0	0

a plasma volume expander was administered to an average individual the expander was diluted about 1:10 with blood, the substance under study or normal saline solution was added in this proportion to each of three of the flasks. Whole blood in the fourth flask was kept as a control. All samples were suspended in a constant temperature water bath at 37°C, where they were agitated by a wrist action shaker. Using a small pump, humidified air was bubbled through the blood in each flask. Positive pressure was maintained by use of an outlet vent controlled by a thumb screw, thus minimizing foaming. Samples were withdrawn at 0, 30, 60, 120 and 240 minutes and spun in Wintrobe hematocrit tubes at 3000 rpm for thirty minutes. Erythrocytes were examined microscopically for evidence of crenation. Supernatant plasma was inspected for the presence of hemolysis.

Results. Studies were made on each of the following substances: human plasma (10 cases); 5% serum albumin in isotonic saline solution (10 cases); 6% Dextran (10 cases); 3.5% polyvinyl pyrrolidone in isotonic saline (10 cases); 5% gelatin in isotonic saline (6 cases); isotonic saline (18 cases).

In each instance, hematocrit determinations immediately following addition of the expander to blood showed a value which reflected only dilution. No differences were noted among the expanders, or between them and isotonic saline solution. Within technical limits, hematocrit determinations on the samples from each flask remained unchanged over the four hour period of observation. Minimal crenation was observed infrequently at the end of four hours. As a rule, a trace of hemolysis was noted grossly in the supernatant plasma in the hematocrit tube at the end of 4 hours. This was usually most marked in the whole blood sample. The accompanying table is representative of the results obtained.

Conclusions. Dextran, polyvinyl pyrrolidone, serum albumin, gelatin, plasma and normal saline have no effect on erythrocyte size *in vitro* under conditions simulating those in the body.

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