In a period of 12 hours or less (Table I) hemolysin could be detected in the blood in a minimum titer of 1:640 in 4 out of 5 cases. A titer as low as 1:320 was noted in only one instance. The hemolytic titers in the cerebrospinal fluid were definitely lower than the titers of the blood. The CNS tissues in most instances showed no hemolysin, the lowest dilution examined being 1:40. In one sample of brain taken from the site of inoculation of the virus, the hemolysin titer was 12% of the blood value.

These findings demonstrate that practically none of the hemolysin administered into the cerebrospinal fluid in monkeys infected with poliomyelitis actually reaches the CNS. The antibodies introduced left the cerebrospinal fluid within the experimental time of 6 to 12 hours and were demonstrable in high titer in the circulating blood.

Shaughnessy[15] has made similar observations.

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Effects of Activity upon Tissues of the Rat.

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This investigation was undertaken in order to determine the effect of different degrees of activity upon the weight and composition of tissues of growing animals. It was thought that this information might throw some light upon the mode of adjustment of the organism to the effects of chronic exercise and aid in the interpretation of observations made upon animals in which muscular activity was a variable factor. In this report are included observations of body and heart weights and the concentration of creatine, hemoglobin, total nitrogen and water in the skeletal muscle of 2 groups of albino rats. Litter mates after being weaned at the age of 5 weeks were equally distributed between 2 groups. The activity of one group, designated as inactive, was restricted by confining the animals to small individual cages for a period of 6½ months. The cages measured 21 cm in diameter by 22.5 cm in height and were almost completely filled with cut paper to further restrict movement. The other group, referred to as active, were housed in revolving activity cages.[1] Food and water were allowed *ad libitum*. The animals were

[15] Shaughnessy, H. J., personal communication.

[1] Durrant, E. P., *Am. J. Physiol.*, 1924, **70**, 344.

TABLE I.

Condition	No. in group	Age in days	Dried heart wt / Live body wt	Avg daily run kilometers	Skeletal muscle			
					H_2O %	% Nitrogen	Mg Hb per 100 g	Mg creatine per 100 g
Active female	12	220	.090	3.62	75.63	13.89	185	498
P.E.M.			±.001	±0.30			±8	±4
Inactive female	12	226	.081		75.61	13.84	152	497
P.E.M			±.001				±3	±4
Active male	11	227	.078	2.79	76.11	14.02	192	527
P.E.M.			±.001	±0.25			±7	±6
Inactive male	13		.076		76.03	13.98	161	505
P.E.M.			±.001				±7	±5
Active male and female	23	222	.084	3.29	75.87	13.96	188	510
P.E.M.			±.001	±0.17			±5	±4
Inactive male and female	25	225	.078		75.82	13.91	156	501
P.E.M.			±.001				±3	±2

killed by bleeding from the cut liver. During the hemorrhage an infusion of saline solution was made into a femoral vein according to the technic described by Whipple,[2] in order to wash the tissues free from blood. The muscles of the unoperated limb were freed as far as possible from fat and connective tissue, clipped into fine bits and aliquots were taken for analysis. Muscle hemoglobin was estimated according to the method of Whipple.[2] The acid hematin standard was employed. Creatine was determined according to Rose, Helmer and Chanutin.[3] The excised heart was opened, compressed against blotting paper, weighed and then dried in an electric oven to constant weight.

There was no significant difference between the body weights of active and inactive female rats. The mean body weight of the inactive males was 13% greater than that of the active group. The water content of the skeletal muscle was essentially the same in all groups. No significant difference was noted in the nitrogen content of skeletal muscle from the active and inactive groups. The creatine concentration in the skeletal muscle was the same in both female groups. The slightly higher mean values for muscle creatine in the active group of males is not regarded as significant. The extractable muscle pigment expressed as hemoglobin was consistently higher in the active animals than in those reared under restricted conditions. It is apparent from the data concerning the ratio of dried heart weight to total body weight that the relative heart weights of the active females exceeded that for the inactive females by approximately 10%. The difference in heart size between the active and inactive males was not significant. In this connection it is to be noted that the activity of the female group as judged by cage revolutions, exceeded that of the male group by 23%. Moreover, the intensity of the exercise may have differed greatly in the two sexes.

The differences in the activity of the active and inactive groups are greater than that permitted in animals reared under the usual laboratory conditions. In view of our findings it is permissible to conclude that any differences that might be found in the creatine, total nitrogen and water content of muscle from animals reared under ordinary laboratory conditions could not be due to differences in activity. It is evident that more intensive exercise than that experienced in spontaneous activity is required in order to bring about significant differences between the concentration of these constituents in active

[2] Whipple, G. H., *Am. J. Physiol.*, 1926, **76**, 693.

[3] Rose, W. C., Helmer, O. H., and Chanutin, A., *J. Biol. Chem.*, 1927, **75**, 543.

and inactive animals. However, differences in activity comparable to those in the above groups are accompanied by significant differences in muscle hemoglobin. This is in accord with the observation of Whipple[2] upon the differences in concentration of muscle pigment in dogs of different breeds and habits.

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Attempts to Demonstrate Vasopressor Properties in the Serum of Hypertensive Dogs.

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Several workers have reported that partial occlusion of the renal artery leads to the accumulation of a pressor substance in the ischemic kidney which may be demonstrated in suitable prepared extracts of the organ.[1-4] The inference that this substance (renin) is liberated into the circulation with consequent peripheral vasoconstricting action has led to attempts to show that the blood of subjects with ischemic kidneys and hypertension has excessive pressor properties compared to blood from normal subjects. Various test objects have been employed in 2 general methods of approach, (a) injection or perfusion of extracts of blood of hypertensive subjects, and (b) injection, perfusion or cross-circulation of whole blood or serum from hypertensive subjects. By the latter and most significant approach, contradictory results have been obtained.[5-12]

1 Harrison, T. R., Blalock, A., and Mason, M. F., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 38.

2 Harrison, T. R., Blalock, A., Mason, M. F., and Williams, J. R., Jr., *Arch. Int. Med.*, 1937, **60**, 1058.

3 Prinzmetal, M., and Friedman, B., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 122.

4 Govaerts, P., and Dicker, E., *Compt. rend. Soc. biol.*, 1936, **122**, 809.

5 Prinzmetal M., Friedman, B., and Rosenthal, N., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 545.

6 Prinzmetal, M., Friedman, B., and Rosenthal, N., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 543.

7 Collins, D. A., and Hoffbauer, F. W., PROC. SOC. EXP. BIOL. AND MED., 1937, **35**, 539.

8 Dicker, E., *Compt. rend. Soc. biol.*, 1936, **122**, 476.