the individual heart was distinctly elevated. This type of cardiac hypertrophy is comparable to that of hypertension.

8435 P

Creatine Content of Digitalized Normal and Hypertrophied Rabbit Heart Muscle.*

GEORGE HERRMANN, GEORGE DECHERD, E. H. SCHWAB AND PETER ERHARD.

From the Department of Medicine, University of Texas, Galveston.

As a preliminary to a study of the effect of digitalization on the progress of experimental cardiac hypertrophy, we administered digalen and digifoline subcutaneously 0.1 C.U. semi-weekly to one series of 10 rabbits for 4 weeks and to 6 other rabbits for 14 to 18 weeks. These animals were then sacrificed and the hearts divided. Muscle from each ventricle was analyzed for creatine by Myer's modification[1] of the method of Rose, Helmar and Chanutin. These values were reduced to terms of dried weight by drying one sample at 105°C. to constant weight, then determining the percentage of solids.

Large rabbits such as were used in these and subsequent studies on hypertrophy, weighed 2200 to 3200 gm. and showed normal creatine values averaging 180 mg. % with solids averaging 22.3%.

Of the 10 rabbits digitalized for 4 weeks, 3 showed essentially normal creatine and total solids content, while the other 7 showed increased levels, as indicated in Table I. In the series in which digitalis injections were continued for 14 to 18 weeks the creatine percentages were slightly higher while the solids had dropped slightly. Simultaneous studies of the vastus lateralis in all of these rabbits revealed values normal for this muscle creatine (400 mg. %) and solids (24%). Thus the digitalis effect in so far as evidenced by the creatine changes is specific for heart muscle. The digitalization evidently produced no change in the heart weight-body weight or left to right ventricular ratios. The normal ratios are recorded in a preceding report.[2]

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1 Seecof, D. P., Linegar, C. R., and Myers, V. C., *Arch. Int. Med.*, 1934, **53**, 574.

2 Herrmann, G., Decherd, G., Erhard, P., and Schwab, E. H., PROC. SOC. EXP. BIOL. AND MED., 1935, **33**, 409.

TABLE I.
Creatine Content of Digitalized Rabbit Heart Muscle.

Digitalis	HW/BW*	L/R†	Left Vent. Creatine	Left Vent. % Solids	Rt. Vent. Creatine	Rt. Vent. % Solids
A. Normals						
4 wk.	2.01	1.61	158	22.3	166	23.2
	1.93	1.52	172	22.8	160	23.8
	1.95	1.66	188	22.3	186	23.8
	1.77	1.80	197	22.9	201	24.3
	2.12	1.67	198	21.8	182	22.7
	1.87		202	22.4		
	1.63	1.58	213	23.2	205	23.9
	1.67	1.72	224	22.9	215	24.0
	1.71	1.64	226	23.3	228	25.3
	2.02	1.72	234	22.5	207	23.2
Aver.			201	22.6	195	23.8
14-18 wk.	2.09	1.80	188	21.0	172	23.2
	1.95		197	22.5		
	1.74		199	22.3		
	1.65	1.40	209	21.7	201	22.8
	2.18	2.00	212	22.1	217	23.2
	2.18	1.80	235	22.8	209	23.4
Aver.			206	22.1	200	23.2
B. Hypertrophied						
Small lesion,	2.07	1.88	218	21.2	199	21.9
? hypertrophy	2.07	2.02	227	23.3	217	23.4
	2.21	2.10	249	22.3	214	23.5
	2.30	1.74	270	23.6	256	24.6
	2.41	1.91	230	22.5	224	22.2
Aver.			239	22.5	222	23.1
Large lesion,	2.55	1.76	200	22.3	197	23.4
definite hypertrophy	2.85	1.84	191	22.3	205	23.7
	3.05	1.84	215	22.7	234	22.7
	3.12	1.75	195	21.5	197	21.3
	3.35	1.78	188	22.0	204	23.4
	3.70	2.10	211	22.2	202	23.7
	3.75	2.30	152	22.2	184	22.8
	3.80	2.01	182	22.5	224	22.7
	4.38	1.75	172	22.1	200	22.7
Aver.			189	22.2	205	23.7

*HW/BW = Gm. of heart muscle per kilo of body weight.
†L/R = The ratio of left to right ventricular weights.

While studying the effect of digitalization on the development of cardiac hypertrophy we were afforded an opportunity for determining the possible concomitant chemical changes. Experimental aortic regurgitation was produced in these rabbits, following which, semi-weekly injections of 0.1 C.U. of digalen or digifoline per kilo were maintained for 14 to 18 weeks.

At the end of the experimental digitalization period the animals were sacrificed and the hearts divided and analyzed by our usual methods.

As demonstrated above, digitalization alone has a tendency to increase the cardiac creatine absolutely as well as relatively, while great hypertrophy[3] gives relatively a decrease although there is an absolute increase in the actual creatine content of the individual heart.

In 5 rabbits with only small perforations of the aortic sail there was little if any hypertrophy demonstrable by an increase of HW/BW ratio above the normal of 1.972 with its S.D. of 0.299. In these the creatine levels were the highest that we have obtained.

In 9 rabbits with lesions involving at least a whole aortic sail and with conspicuous cardiac hypertrophy there was a normal or elevated creatine percentage and consequently a considerable increase in cardiac creatine content. The digitalization seems to offset the creatine percentage drop of great hypertrophy.

8436 C

Attempted Reversal of Filarial Periodicity in Dirofilaria Immitis.

E. HAROLD HINMAN.

From the Department of Tropical Medicine, Louisiana State University Medical Center, New Orleans, La.

Since Manson[1] discovered the phenomenon of filarial periodicity in China numerous investigators have sought to elucidate its mechanism. Mackenzie[2] was the first to reverse this periodicity by inverting the period of sleep and activity and his success led him to the belief that the sleeping and waking states are primary factors in its production. Manson successfully repeated and varied Mackenzie's experiment and since then a number of investigators have confirmed it, including Low, Manson-Bahr and Walters.[3,4] These workers pointed out, on the basis of very careful 2-hour sampling, that true reversal did not occur but an irregular periodicity resulted from the patient's changing his daily routine.

3 Decherd, G., Schwab, E. H., Herrmann, G., and Brown, W. O., PROC. SOC. EXP. BIOL. AND MED., 1935, **33**, 521.

1 Manson, P., *The Filaria sanguinis hominis.* London, 1881.

2 Mackenzie, S., Haematochyluria. (Demonstration Pathological Society, London.) *Lancet,* 1881, 707.

3 Low, G. C., Manson-Bahr, P. H., and Walters, A. H., *Lancet,* 1933, 466.

4 Low, G. C., Manson-Bahr, P. H., and Walters, A. H., Further observations on filarial periodicity. *Lancet,* 1934, 531.