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Effect of Forced Exercise on Size of Heart in Normal and Pericardiotomized Dogs.

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An effort was made to determine whether or not the pericardium plays any rôle in limiting the size of the heart following severe exercise. The pericardium of 3 dogs was so incised as to remove any restraining influence. Two normal dogs of approximately the same weight and size as the others were used as controls. The operated dogs were observed over a long period of time (6 mo.) during which x-ray plates of their hearts were taken. The mean deviation of the mean value of the silhouette area, as measured over this period of time, and covering many measurements, was ±3½ sq. cm., or about 5% of the total area.

During this period the pericardiotomized dogs and the normal dogs were trained to run on a treadmill. They were forced to run approximately 1 hr. each day until they had accumulated a total of 50 hrs. each. The x-ray plates during this time were taken during rest periods so as to determine the mean size of the heart during rest. The treadmill was elevated at an angle of 14° and was run by a small electro motor. Its speed during these preliminary studies was 7,200 feet per hour; during the first set of experiments, it was increased to 9,900 ft. per hour and in the second set of experiments to 17,250 ft. per hour.

A setter (pericardiotomized dog) weighing 38 lbs. was put on the treadmill and run steadily at speed of 9,900 ft. per hour for 7 hrs., thereby performing 657,282 foot lbs. work. At the end of 7 hrs. the dog seemed quite fatigued and refused to run. Pulse at beginning was 126 and at the end of exercise 172 and very rapidly returned to the normal, 102. The dog was x-rayed at once.

Mean value of silhouette area of pericardiotomized dog as measured over a long period of time = 69.9 ± 3.5 sq. cm. After 7 hrs. running = 65.7. Difference, 4.2 sq. cm.

A hound, weight 39 lbs. (control) was run for exactly 7 hrs. under the same conditions, thereby performing 674,053 foot lbs. work. At the end of 7 hrs. the control dog seemed very tired. Pulse before running was 114 and after running 168. Returned to normal at once. He was x-rayed immediately.

Mean value of silhouette area of control dog as measured over a

long period of time = 69.4 ± 3.5 sq. cm. After 7 hrs. running = 69.3.

In another set of experiments, the speed of the mill was increased to 17,250 ft. per hour. The same dogs were used as in the previous experiment. The dogs were run for 3 hours each.

Pericardiotomized dog—

Immediately before running	72.0 sq. cm.	Mean value of silhouette
Immediately after running	66.6 " "	area over a long period
		of time = 69.9 ± 3.5.
Decrease in size of	5.4	

Control dog—

Immediately before running	71.8 " "	Mean value of silhouette
Immediately after running	67.5 " "	area over a long period
		of time = 69.4 ± 3.5.
Decrease in size of	4.3	

In this experiment the size of both the heart of the pericardiotomized dog and of the control dog decreased in size following forced severe exercise. This decrease in size was greater than the limit of error. Our results are in accordance with most of the work done heretofore on the effect of exercise upon the size of the heart. The pericardiotomized animal reacted to exercise in exactly the same manner as a normal animal, *i. e.*, a slight decrease in heart size.

The dogs were in no way affected by the removal of the pericardium.

These experiments are in agreement with Stewart,[1] Yamada,[2] Beck and Moore.[3]

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The Point of Origin of the Bronchial Breath Sounds.

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A tracheotomy was performed on a patient who had a carcinoma of the larynx, and a pneumonia developed in the left lower lobe. With the patient's nose closed firmly by the fingers of the doctor

[1] Stewart, *J. Clin. Invest.*, 1929, 339.

[2] Yamada, *Mitt. a. d. Med. Falc. d. k. Univ. zu Tolcio*, 1917, xvi, 527.

[3] Beck and Moore, *Arch. Surg.*, 1925, xi, 550.