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Quantitative experimental data on the sympathetic innervation and tonus of triceps brachii muscles.

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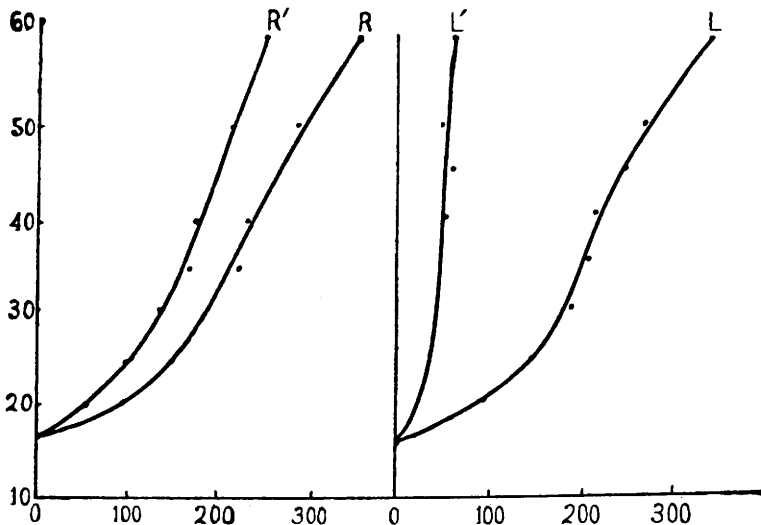
In a recent paper¹ the writers reported briefly the results of tonus measurements on the quadriceps femoris muscles in cats and dogs, obtained by the use of Spiegel's method,² before and after elimination of the sympathetic nerve supply to these muscles, and before and after removal of the cerebellum. By the use of the same method, tonus measurements of the triceps brachii muscles in cats and dogs were obtained before and after elimination of their sympathetic, and before and after elimination of their somatic nerve supply.

The tonus curves, *i. e.*, the curves of passive extension, of the triceps brachii, obtained under comparable conditions, are similar to those of the quadriceps femoris. However, the components of tonus mediated through the sympathetic and the somatic innervation, respectively, can be studied more advantageously in the triceps than in the quadriceps, by reason of the fact that either the sympathetic or the somatic nerve supply to the former may be cut off, leaving the other intact. In the case of the quadriceps the sympathetic supply may be cut off without impairing the somatic, but the somatic supply may not be cut off without impairing the sympathetic. In our experiments the sympathetic nerve supply to the triceps was eliminated by extirpation of the inferior cervical sympathetic ganglion. The somatic supply was cut off

¹ Kuntz, A., and Kerper, A. H., *Proc. Soc. Exp. Biol. and Med.*, 1925, **xxiii**, 77.

² Spiegel, E. A., *Z. f. d. ges. Neur. u. Psych.*, 1923, **lxxii**, 517.

FIGURE 1.



R. and L., tonus curves of the normal right and left triceps brachii muscles respectively of a dog. R', tonus curve of the right triceps brachii muscle following division of both roots of the sixth, seventh and eighth cervical nerves. L', tonus curve of the left triceps brachii muscle following extirpation of the left inferior cervical sympathetic ganglion.

by division of both roots of the sixth, seventh and eighth cervical nerves within the vertebral canal.

If the limb is only slightly flexed at the beginning of measurement, the tonus curve of the normal triceps (Fig. 1, R. L.), like that of the normal quadriceps, rises very slowly at the beginning and then more rapidly as passive flexion of the limb increases. The greater resistance offered by the muscle at the beginning of passive extension, indicated by the slow rise in the curve, constitutes the so called "brake phenomenon". Following elimination of the somatic nerve supply, leaving the sympathetic supply intact, the resistance of the muscle to passive extension is diminished somewhat, but the brake phenomenon is still exhibited. This is illustrated by curve R' in the figure. This curve represents the component of tonus which is mediated through the sympathetic innervation. Following elimination of the sympathetic nerve supply, leaving the somatic supply intact, the resistance of the muscle to passive extension is diminished to a far greater degree and the brake phenomenon is absent. The tonus curve (Fig. 1,

L') rises rapidly from the beginning. This curve represents the component of tonus which, in the absence of contractile effort, is mediated through the somatic nerves.

The results of these experiments corroborate the results of the tonus measurements on the quadriceps femoris muscles, reported in the previous communication.¹ Furthermore, they demonstrate the existence of tonus in a skeletal muscle in the absence of functional somatic nerves. Doubtless this component of tonus is plastic in quality. Therefore, additional evidence, both quantitative and positive in character, is afforded in support of the theory that plastic tonus in skeletal muscles is mediated through the sympathetic nervous system.

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Conditions affecting the formation of glycuronic acid in rabbits.

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This experiment represents preliminary data of a study, the object of which is to determine the factors which affect the formation of glycuronic acid in the body.

A solution of menthol was made by dissolving 44 grams in enough warm olive oil to make a total volume of 66 cc. Six cc. portions were administered to rabbits through a stomach tube by means of a graduate syringe. Only healthy young animals were used.

Date	No. of animals group	Av. wgt. in kilos	Treatment	Gm. menthol per rabbit	Excretion of crude ammonium menthol glyceuronate per rabbit
7/ 8/25	6	2.04	Normal: food + glucose	4.0	4.0
7/11/25	5	2.00	Insulin: food + glucose	4.0	2.6
7/14/25	4	—	Normal: food	4.0	3.7
7/16/25	4	1.95	Phlorhizin: starving	4.0	2.2