

8802 P

Sympathetic Denervation upon Peristalsis of the Cat Small Intestine *in Situ*.

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We have not found in the literature any reported measurements of the effect of sympathetic denervation upon motility of the small intestine *in situ*.

In the present work 9 cats were used. The cats were kept on the same adequate diet throughout the period of observation. After the cats had been under observation for at least 10 days, they were etherized, a No. 14 F. rubber catheter passed down into the stomach, and 20 cc. of a mixture of 1 part barium sulphate to 2 parts water introduced. In about 5 minutes the cats were usually wide awake. The movements of the alimentary canal were then studied under a fluoroscope and the barium followed until the head of the column reached the caecum. This end point was usually easily determined. A total of 15 preoperative control readings was made on the 9 cats. Two of these cats died of respiratory infections prior to operation, and 1 did not recover from the later operative procedure. In the remaining 6 the lumbar sympathetic chains were successfully removed, and the splanchnic nerves sectioned below the diaphragm, which necessarily also removed the sympathetic innervation of the adrenals. The operation was completed in one stage in 3 cats, in 2 stages in 3 cats. Following complete recovery the motility of the small intestine was again studied in the manner described. The results are shown in Table I. The probability (P_t) of observed differences in results in Table II being due to chance has been calculated by Fisher's method.¹

It will be noted that the results were obtained upon cats with some degree of sympathetic stimulation due to (1) brief etherization, (2) excitement. The stimulating effect of ether upon the sympathetic innervation of the small intestine appears to be limited, however, to the period of inhalation.² Since no attempt to "train" the cats to handling for the fluoroscopic observations was made it

¹ Fisher, *Statistical Methods for Research Workers*, Section 24.1, 4th Ed., 1932, Oliver and Boyd.

² Bhatia and Burn, *J. Physiol.*, 1933, **78**, 257.

TABLE I.*

Cat No.	1	2	3	4	5	6	7	8	9†
Before	125(67) 105(58)	145(42) 148(33)	117(65)	132 120	130	120(40)	120 125	111(50) 123(18)	215(50) 120(18)
After	72(10) 69(14)	70(14) 71(23)	60(10) 64(14)			67(14) 70(23)		67(12) 71(14)	67(12) 68(14)

*Time in minutes for barium introduced in stomach to reach the caecum. Figures in parenthesis indicate No. of days before or after operation.

†Cat 9 on first control reading was extremely excited.

TABLE II.

	No. of cats	No. observations	Mean of observations Minutes	Standard deviation	Standard deviation of mean	P _t
Before	9	15	130	26.0	6.7	
After operation	6	12	68	3.4	.98	<.01

is considered that the grades of excitement and consequent actual or abortive sympathetic inhibition were approximately the same in the animals before and after operation. The removal of the sympathetic innervation of the adrenals tends to prevent increased epinephrine output from excitement and resultant hormonal intestinal inhibition.

Conclusion. Sympathetic denervation of the small intestine and adrenals of the cat reduces the average time for barium sulphate suspension to reach the caecum from the stomach to about 52%. The difference observed appears statistically significant.

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Influence of Magnesium Oxide on Antipyretic Action and Toxicity of Acetylsalicylic Acid in Rabbits.

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Issekutz,^{1, 2} and Barbour and his coworkers³⁻⁶ have shown that

¹ Issekutz, B., *Therap. Monatschr.*, 1915, **39**, 379.

² Issekutz, B., *Arch. f. ges. Physiol.*, 1913, **151**, 456.

³ Winter, J. E., and Barbour, H. G., *PROC. SOC. EXP. BIOL. AND MED.*, 1928, **25**, 587.

⁴ Barbour, H. G., and Winter, J. E., *J. Pharm. Exp. Therap.*, 1929, **35**, 425.

⁵ Barbour, H. G., and Winter, J. E., *PROC. SOC. EXP. BIOL. AND MED.*, 1928, **25**, 582.

⁶ Winter, J. E., Richey, C. H., and Barbour, H. G., *J. Pharm. Exp. Therap.*, 1930, **38**, 3.