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Action of Ergot Alkaloids on Intestine and Uterus.

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That ergot alkaloids abolish the muscle contracting action of epinephrine has been known for many years.¹ It was only recently that an effect of the alkaloids was demonstrated on the inhibitory action of epinephrine² and proposed as a means of bio-assay of ergot preparations³ by European workers. More recently still, Mendez⁴ reported inability to confirm the findings of previous workers. My results will therefore be of interest, in that they confirm the reports of the European investigators that the intestinal sympathetics can be markedly depressed, if not paralyzed by ergot alkaloids.

The ordinary Magnus strip method, using Tyrode's and Locke's solutions and segments of small intestine of rabbit and cat, and of colon of rabbit, cat and guinea pig, and uterus of rabbit, was employed. Ergotamine tartrate (Sandoz)* and Adrenaline-HCl tablets (Parke-Davis) were the preparations used, the ergotamine in concentrations of 1:250,000 to 1:500,000 and epinephrine in concentrations of 1:10,000,000 to 1:750,000. In all trials upon the small intestine of the rabbit and cat, epinephrine caused relaxation or inhibition before the application of ergotamine, but following ergotamine the action of epinephrine was to a large extent or entirely abolished, as shown in the figure. However, concentrations of

¹ Dale, H. H., *J. Physiol.*, 1906, xxxiv, 163.

² Planelles, *Arch. exp. Path. Pharm.*, 1924-5, cv, 38.

³ Issekutz, B. von, and Leinzinger, M. von, *Arch. exp. Path. Pharm.*, 1928, cxxviii, 165.

⁴ Mendez, R., *J. Pharm. Exp. Therap.*, 1928, xliii, 451.

* Supplied by H. A. Metz Co.

ACTION OF ERGOT ALKALOIDS

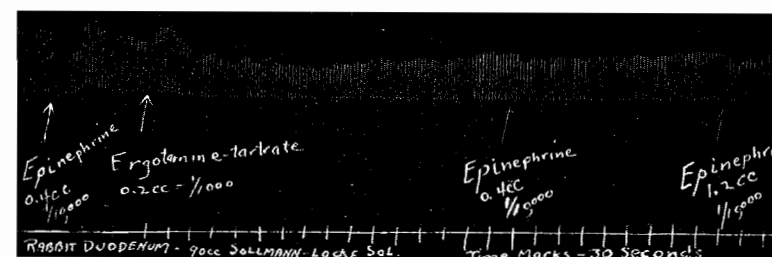


FIG. 1.
Effect of ergotamine tartrate upon the response of rabbit duodenum to epinephrine

ergotamine up to 1:20,000 failed to influence the action of epinephrine upon the colon of the rabbit, cat or guinea pig; it was also impossible to prevent epinephrine inhibition of the uterus of the rabbit by ergotamine (or by ergotoxin or extract or ergot).

The difference in response between the small intestine, and the colon and uterus is interesting, in view of the difference in innervation, activity and physiological stability of the organs of the upper and lower abdominal cavity.