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Action of Pseudo-Ephedrine on Uterus and Bladder.

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In a series of 90 experiments on isolated strips of rat, rabbit, guinea pig, dog and human uterus, and on muscle strips from the fundus and trigone of the rabbit bladder, suspended in 100 cc. Tyrode solution at 38° C., according to Burn and Dale's method, the characteristic and specific action of pseudo-ephedrine was sought. This was compared with the action of ephedrine, adrenaline and pituitrin.

Rabbit Uterus. Pseudo-ephedrine gives a prompt increase of tone, and rate of contractions. This accords with the results reported by Fujii[1] who concluded that the action in all doses is wholly on the muscle. It was found that, after ergotoxin paralyzes the augmentor fibers of the sympathetic, pseudo-ephedrine still causes contraction at the same or increased rate but with less increase in tone. Adrenalin, applied after the onset of these contractions, promptly obliterated them, probably a manifestation of the reversal effect of ergotoxine.

Pak and Read[2] have shown that pseudo-ephedrine increases blood pressure and has a diuretic effect, which add to the picture of a pituitrin-like action. This is supported, also, by the action, reported by Fujii[1] on the intestine, which responds to muscular stimulation by relatively large doses. The experiments here reported showed increase of tone and rate and a sustained effect in guinea pig and human uterus, the curves resembling those of pituitrin.

It was found that atropine has no effect on the action of pseudo-ephedrine in the rat uterus. The fundus of the rabbit bladder, with its parasympathetic innervation[3] is relaxed by atropin, but seems to be slightly stimulated by pseudo-ephedrine. The very slight effect on the fundus and absence of effect on the trigone, by pseudo-ephedrine, suggests a balanced muscle-nerve effect. More work is under way on this point.

This study will be continued on intact animals and, as opportunity offers, in clinical cases.

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[1] Fujii, M., *J. of Orient Med.*, 1925, iii, 1.

[2] Pak, C., and Read, B. E., *Chinese J. of Physiol.*, in press.

[3] Macht, D. I., *J. Pharm. and Exp. Therap.*, 1926, xxvii, 390.