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Effects of Posterior Pituitary Extracts on the Oxygen Consumption of Excised Tissue.

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It has been noted that pituitrin and pitressin,¹ when injected subcutaneously cause a diminished oxygen consumption of rats. Injections of pitocin, on the other hand, were followed by a slight increase of the intake of oxygen. The action of the posterior pituitary extracts may be either of central or peripheral origin, or both. Therefore it becomes of interest to determine the effects of these extracts on excised tissues.

Rats weighing approximately 250 gm. were used and diaphragm, liver, and testis were studied according to the technique of Warburg.² In each experiment, 8 pieces of tissue of the same organ were used; 4 with one of the posterior pituitary extracts and 4 without. Any determination which diverged widely from the others was discarded. Thus each value given in the table represents the best check of 4 determinations. The extracts were kindly furnished by Dr. Oliver Kamm and contained 10 pressor units (pitressin), 10 oxytocic units (pitocin) or 10 units of each of these fractions (pituitrin), per cc. The extracts were freed of chloratone before use, and the total volume of fluid in the respiration chamber was 3 cc.

TABLE I.
Oxygen consumption of excised tissues in cu. mm. per mg. and minute.

	Pituitrin 1/4 cc.		Pitressin 1/10 cc.		Pitocin 1/4 cc.	
	with	without	with	without	with	without
Testicle	.008	.026	.011	.042	.003	.003
Diaphragm	.007	.024	.012	.014	.018	.027
Liver	.020	.045	.013	.065	.009	.012
	Pituitrin 1/10 cc.		Pitressin 1/20 cc.		Pitocin 1/20 cc.	
	with	without	with	without	with	without
Testicle	.004	.019	.001	.017	.009	.011
Diaphragm	—	—	.019	.048	.003	.017
Liver	—	—	.054	.064	.008	.015

Conclusions. The action of pituitrin and pitressin is to depress the oxygen consumption of excised tissue while that of pitocin is not consistent. Further work is being done with these extracts.

¹ Himwich, H. E., and Haynes, F. W., *Am. J. Physiol.*, 1931, **96**, 640.

² Warburg, O., *Biochem. Z.*, 1923, **142**, 317.