

whereas those of *Sarcophaga larvæ*^{6,7} are chitinized but not sclerotized.

M. T. SEWELL

Department of Zoology,
University,
Manchester 13.
Jan. 16.

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Excretion of Yttrium-91 in Rabbits

ESTIMATION of the excretion of yttrium-90 by analysing the decay curves of excreta when a solution of strontium-89, together with strontium-90 and yttrium-90 in radioactive equilibrium, was injected into young and adult rabbits on different diets suggested that the excretion of yttrium was affected by age but not by diet¹. The method of estimation was open to large errors.

EFFECT OF AGE ON THE EXCRETION AND RETENTION OF YTTRIUM-91

Age	Yttrium-91 retained per gm. of bone (per cent)	Yttrium-91 excreted (per cent)		Yttrium-91 retained in carcass other than bone (per cent)	Total recovery (per cent)
		Urine	Fæces		
5-7 weeks	0.60	10.1	6.3	6.7	84.8
"	0.62	13.2	3.4	6.3	86.2
"	0.66	12.6	2.9	5.3	87.3
7 months	0.39	19.6	2.9	9.3	89.9
"	0.32	23.5	3.4	8.4	87.3
"	0.27	29.0	3.0	8.4	89.3

The effect of age has been confirmed by actual estimations of both retention and excretion following injection of yttrium-91 (see table). The mean retention per gram of bone in three weanling rabbits five-six weeks old on a medium calcium diet killed nine days after an injection was 0.63 per cent per gm. of bone, while in three seven-months old rabbits it was 0.33 per cent of the injected dose per gm. of bone. The mean excretion in the urine in weanlings was 12.0 per cent of the injected dose, whereas in adults it was 24.0 per cent of the injected dose.

These findings confirm that the decay curve method for estimating the excretion of yttrium-90 has validity. They are also of interest since Copp *et al.*² state that the age of the animal does not affect the excretion and retention of yttrium in rats. There is at present no explanation for this apparent difference between the two species.

This work was carried out on behalf of the Protection Sub-Committee of the Medical Research Council's Committee on Medical and Biological Applications of Nuclear Physics.

BARBARA KIDMAN
MARGARET TUTT
JANET VAUGHAN

Department of Pharmacology,
Oxford.
Jan. 15.

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High Concentration of norAdrenaline in Calves' Suprarenals

EXTRACTS of the suprarenal medulla of many mammals, including man, contain both adrenaline and noradrenaline, the latter being present to the extent of about 30 per cent of the total¹. The proportion of noradrenaline in extracts of tumours of the adrenal medulla is much higher². It is possible that this difference may be related to the fact that the tumour cells are relatively undifferentiated and thus may be more comparable with embryonic tissue than with adult tissue. True embryonic tissue is difficult to obtain; but an opportunity arose recently of examining the suprarenal glands of male calves shortly after birth. I am grateful to Dr. R. S. Comline for supplying suprarenals from decerebrate calves. The whole suprarenal glands were removed at the end of the experiment and immediately extracted with 0.1 N hydrochloric acid in the usual way³. The extract was assayed against adrenaline on the rat's uterus and against both adrenaline and noradrenaline either on the rat's colon or on the rabbit's intestine. A high proportion of noradrenaline was found in every extract, as is shown in Table 1.

Table 1. CALVES' SUPRARENALS

No.	Age (days)	l-Adrenaline (mgm./gm.)	l-norAdrenaline (mgm./gm.)	% norAdrenaline
Experimental	1	1.6	2.6	62
	2	0.8	1.9	70
	3	2.2	5.4	71
	4	1.9	2.3	55
	5	1.3	3.9	75
	6	0.5	2.5	83
	7	1.0	2.7	75
	8	6	6.7	51
	9	5	4.6	48
	10	>7	2.5	7.4
Mean				66

Since these results were different from those obtained by von Euler⁴ with cattle suprarenals, three experiments were performed with whole bullocks' glands from the slaughterhouse. The glands were put into ice-cold 0.1 N hydrochloric acid about 30 min. after death and were taken to the laboratory, where the extracts were prepared and tested. The results, which are shown in Table 2, are in agreement with those of von Euler.

Table 2. BULLOCKS' SUPRARENALS

No.	l-Adrenaline (mgm./gm.)	l-norAdrenaline (mgm./gm.)	% norAdrenaline
1	0.94	0.22	16
2	1.25	0.7	36
3	1.75	1.2	41
Mean			31

The suprarenals of three calves were also collected from the slaughterhouse, and results from these are included in Table 1. Comparison of Tables 1 and 2 shows that the proportion of noradrenaline is greater in calves than in bullocks ($P < 0.01$). The difference is due to a greater absolute amount of noradrenaline in the calves' glands; the amount of adrenaline in experimental calves is not different from that in bullocks. Calves' suprarenals from the slaughterhouse, however, contain more adrenaline ($P < 0.01$) and even greater amounts of noradrenaline. This may be due to the fact that the animals were older or that they were not used for experiment. It is