(1) Female albino rats actively sensitized to horse serum (donors) (Norn, 1965) were treated during the first week of the sensitization period with a daily subcutaneous injection of one of the substances listed in Table 1. The rats were killed by bleeding from the carotid arteries 3 weeks after the first treatment with horse serum. From each rat a suspension of peritoneal cells was incubated *in vitro* with horse serum and the quantity of histamine liberated was determined as a percentage of the total content (Norn, 1967). Serum (2 ml.) from each rat diluted with 6 ml. of modified Tyrode solution (Norn, 1965) was injected in two intraperitoneal doses of 4 ml., 2 hr apart, into each non-sensitized rat (recipient). The histamine release in peritoneal cell suspensions from these rats was determined in a similar way 48 hr after the passive sensitization.

TABLE 1. *Influence of antirheumatic agents on histamine release from actively and passively sensitized rat peritoneal mast cells*

Pre-treatment of donors for:	% Histamine release by Donors		Recipients	
	Control	Test	Control	Test
1 *week; daily dose*				
Hydrocortisone 43 mg/kg	57*	34*	50†	18†
21 mg/kg	52	45	60†	25†
Sodium aurothiosulphate 21 mg/kg	52	44	60	56
Phenylbutazone 86 mg/kg	57	49	50	40
3 *weeks; daily dose*				
Hydrocortisone 12 mg/kg	61	58		
Sodium aurothiosulphate 17 mg/kg	69	69		
Phenylbutazone 67 mg/kg	61	69		

Each group comprised eight–twelve rats. * $P<0.05$ by t test. † $P<0.01$.

(2) Corresponding rats (donors) were treated during 3 weeks before the active sensitization with a daily subcutaneous injection of an anti-rheumatic agent (see Table 1). The corresponding histamine release from these rats is given in the Table.

Pre-treatment of rats with hydrocortisone given at the beginning of the sensitization period inhibited the histamine release in peritoneal cell suspensions from these rats as well as from rats passively sensitized with their serum. This indicates an inhibition of the antibody production. Inhibition was not obtained with sodium aurothiosulphate or phenylbutazone. In contrast, none of the three antirheumatic substances changed the histamine release from actively sensitized rats when given before the sensitization period.

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Vascular and metabolic effects of histamine and compound 48/80 in subcutaneous adipose tissue

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Adipose tissue has been found to contain histamine and 5-hydroxytryptamine (5-HT). The amount of these amines in adipose tissue decreased after treatment with compound 48/80, a potent mast cell degranulating agent. It was concluded that histamine and 5-HT were probably stored in mast cells (Bieck, Stock & Westermann, 1967).

In the present experiments we investigated the effect of histamine, 5-HT, and heparin, as well as compound 48/80, on the release of free fatty acids (FFA) and glycerol from canine subcutaneous adipose tissue. Heparin is known to increase lipoprotein lipase (LPL) activity, and this enzyme was also assayed. Moreover the vascular effects of these substances were studied.

Subcutaneous adipose tissue located in the inguinal region of the female dog was isolated and, when metabolic effects were studied, perfused with the dog's own blood at a constant rate from a reservoir (Rosell, 1966). The venous outflow was collected and later analysed for FFA, glycerol content, and LPL activity. Circulatory effects were studied with a plethysmographic technique (Mellander, 1960) permitting the study of series coupled vascular sections.

Compound 48/80 (25–250 μg I.A.) failed to produce a significant LPL release but invariably increased the release of FFA and glycerol. On repeated administration the response decreased. Lower doses of compound 48/80 failed to produce any changes in the above mentioned parameters.

Histamine produced a dose-dependent increase in FFA and glycerol release; thus amounts lower than 0.5 μg had no discernible effect but, with amounts from 0.5 to 150 μg, increasing effects on FFA and glycerol release were seen. Histamine apparently had no effect on LPL activity.

Heparin (0.5–500 μg. I.A.) caused a dose-dependent increase in plasma LPL activity, the response gradually decreasing on repetition of the injection. Heparin had no effect on the release of FFA and glycerol.

Compound 48/80 produced a transient vasodilatation, the response decreasing on repeated administration. Histamine and 5-HT both caused a dose-dependent vasodilatation and an increase in the capillary filtration coefficient indicating an augumented capillary exchange function.

In conclusion, the experiments have shown that histamine and compound 48/80 induce a marked increase in the rate of FFA mobilization from canine subcutaneous adipose tissue and circulatory adjustments favouring capillary exchange.

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Cyclic AMP as a mediator of hormonal metabolic effects in brown adipose tissue

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Noradrenaline in a concentration of 5×10^{-6} g/ml. (Beviz & Mohme-Lundholm, 1967), 5-hydroxytryptamine (2.3×10^{-6} g/ml.) and ACTH (0.34 i.u./ml.) was found to stimulate the oxygen consumption, the production of lactate and glycerol and release of free fatty acids (FFA) maximally in brown adipose tissue of the rat. The maximal calorigenic action of 5-hydroxytryptamine was stronger than that of noradrenaline whereas the action