

Superfoetation in CBA Mice

Superfoetation is defined¹ as the occurrence in the same animal of 2 pregnancies at different stages of development. Such anomalous gestations are generally considered¹⁻³ to be the result of a further ovulation and fertilization occurring after the beginning of pregnancy. Apparent spontaneous superfoetation is not very common, although several cases have been reported in cat⁴, in sheep^{5,6}, in pig^{6,7}, in rat^{8,9} and in man¹⁰. Some examples have been described in mice by CREW and MIRSKAIA¹¹, LITTLEFORD and GYSIN¹² and more recently by BARNETT and MUNRO² in mice of a mixed stock derived from 4 inbred strains, A, A2G, C57B1 and GFF.

single pregnancy. In addition, it is of interest to note that the strain studied has apparently a tendency for a delayed implantation as seen from the somewhat longer pregnancy recorded in some cases (Table). Since the same phenomenon was observed in the offspring of 1 female showing superfoetation, it is possible that this character can, to some extent, be inherited¹³.

Résumé. Plusieurs cas de superfoetation ont été observés chez des souris de race CBA. Compte tenu des conditions expérimentales, il apparaît que ces cas de gestation anormale sont dus soit à la fécondation d'ovules produits

Analysis of anomalous gestations

Mouse No.	First litter after mating				'Fatherless' litter			
	Days since last mating	No. weaned			Days since last mating	No. weaned		
		Total	♂	♀		Total	♂	♀
1	24	3	0	3	45	6	4	2
	22	5	4	1	51	2	1	1
2	35	5	3	2	58	1	1	0
3 ^a	27	4	2	2	47	4	2	2

*Offspring from female No. 1.

Similar observations have been recorded in our laboratory in a small breeding colony of an inbred strain. 60 females from the CBA strain, 11–13 weeks old, were mated, 1 male with 3 females, with animals from the same strain. Pregnant females were removed 5 to 10 days before parturition and were kept in separate cages until 30 days after weaning of the first litter. As shown in the Table, 2 females which were removed from the male gave a second litter 21 and 23 days respectively after the first delivery. Both sexes were represented in each litter. Such anomalous gestation occurred again with the first female and also in 1 pair sired by the same animal.

The fact that the females were removed from the males at least 5 days before parturition excludes the possibility of insemination during late pregnancy. As BARNETT and MUNRO² have pointed out, parthenogenesis or storage of spermatozoa in the females are unlikely to occur. Thus, such anomalous gestations must be either the result of delayed implantation upto parturition of the first pregnancy, of blastocysts in females which have ovulated and mated after the beginning of the first pregnancy or of delayed implantation of blastocytes from the same ovulation and fertilization which also gave rise to the first pregnancy. An argument in favour of the second alternative may be seen in the fact that the litter size of both pregnancies together approaches that normally found in a

peu de temps après le début de la gestation, soit à un retard dans l'implantation d'un certain nombre d'ovules qui ont donné la première nichée. Nos observations sembleraient montrer que ce phénomène pourrait être plus fréquent que ce que l'on avait cru jusqu'à présent.

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Activation of Aldosterone and Renin Secretion by Thermal Stress

Thermal stress with or without exercise, or thermal stress combined with sodium deprivation, increases mineralocorticoid excretion in man¹⁻⁵. A sodium deficit seems necessary to increase aldosterone production during heat exposure since urinary tetrahydroaldosterone excretion rates increased during acclimatization to heat when

sodium deficits of 140–320 mEq were incurred, but not during acclimatization with replacement of sodium losses⁶. However, no data exist on plasma aldosterone (PA) concentrations and plasma renin activity (PRA) in men exposed to acute thermal stress during normal sodium intake and sodium deprivation.