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**Cyclic Changes in Vaginal Flora of the Rat.**

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The flora of the vaginal canal of the normal rat has been studied in relation to the oestrous cycle. Cultures were made upon blood agar plates and the number of organisms and the types of organisms were determined. At the same time the stages of the oestrous cycle were noted by means of stained smears of the vaginal secretions. We have also studied the effect of spaying rats and the influence of administration of ovarian extract to such spayed rats.

It appears that in the normal dioestrous stage certain gram negative bacilli are the principal, if not sole, organisms found in the vagina of the rat. This is true in both the mature and immature virgin, and it appears from a single observation that during the early stages of pregnancy these same organisms are the predominant organisms in the vaginal canal of the pregnant rat. These same organisms predominate in the vaginal canal during oestrus, preoestrus and metaoestrus, but during oestrus there appear in addition large numbers of Gram positive cocci, a few Gram negative cocci, and also a few Gram positive bacilli. This cyclic change in the bacterial flora of the vaginal canal is quite as constant as are the cytological changes which serve to mark the various stages of the oestrous cycle.

When a rat is spayed the cyclic bacteriological changes cease, just as do the cytological changes. If such a spayed rat receives an injection of ovarian hormone, the bacteriological findings become essentially those of the oestrous stage, just as the cytological picture changes to that of the oestrus.

It is evident then that the changes of the bacteriological flora of the rats' vagina are in some manner intimately related to ovarian activity. The exact relationship remains to be worked out.