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Summary only

REPEATED GONADOTROPHIC STIMULATION OF EWES

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Seventy-nine "synchronized" ewes were treated with either 1000 or 1500 i.u. of pregnant mare's serum gonadotrophin (PMSG) given on day 12 of the oestrous cycle in the following ways:

- (1) Injected in each of three consecutive cycles (cycles 1, 2 and 3).
- (2) Two injections separated by a normal oestrous cycle (cycles 1 and 3).
- (3) One injection in each of two consecutive cycles (cycles 2 and 3).
- (4) One injection (cycle 3).
- (5) Control: untreated.

At a constant time relative to the onset of the third oestrus, the ewes were blood sampled and slaughtered. The reproductive tracts were examined and the numbers of recent ovulations recorded.

Ovulation rate declined with consecutive superovulation treatments. This condition appeared to be cumulative and was partially overcome by treating ewes at alternate cycles. Higher dose levels yielded lower ovulation rates in ewes subjected to two or more consecutive treatments, whereas more normal responses were seen in ewes injected either in one cycle only or in two cycles separated by one cycle in which no PMSG was given.

Blood was also collected from a further eight ewes injected with 500 or 1000 i.u. PMSG, twice a week for six weeks, and with half the ewes given their first injection in an emulsion with Freund's adjuvant.

Samples of the sera from ewes on all the treatments were bioassayed in immature mice, injected with 1 i.u. PMSG, to detect evidence of antibodies to the gonadotrophin. Sera from chronically treated ewes inhibited the mouse uterine weight response to the injected hormone. This effect was more marked when Freund's adjuvant was used. Samples from sheep injected with PMSG in each of three consecutive cycles and also the controls showed no signs of inhibiting this response.

It was concluded that, although sequential treatments with PMSG will cause lowered ovarian responses, the production of antibodies against the exogenous hormone does not seem responsible. However, the induction of such an antibody response by chronic treatments is easily demonstrated.