

## THE INSULIN TOLERANCE TEST AND THE OUTCOME OF PREGNANCY IN NORMAL AND HABITUAL ABORTER ANGORA GOAT DOES

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Differences in certain haematological factors between normal and aborting Angora goat does (van Rensburg, 1964; Morgenthal, 1966) have been shown to be the consequence of abnormal corticosteroid metabolism (van Rensburg, 1971). This abnormality often terminates in foetal death and abortion, which is thought to be the result of collapse at the pituitary-adrenocortical level (van Rensburg, 1971). The present study was therefore undertaken to investigate the stability of certain carbohydrate metabolism governing factors in the pregnant normal and habitual aborting Angora goat.

The insulin tolerance test (Varley, 1965) was performed on six normal and six confirmed aborters, all between 70 and 80 days of pregnancy. In addition, this test was performed on eight does immediately after the first signs of abortion (which may have been up to three weeks after foetal death (van Rensburg, 1971)). The insulin tolerance test (Varley, 1965) was slightly modified with regard to intervals of blood collection after intravenous injection of 0,1 units of insulin per kg bodymass (Figure 1).

From Figure 1 it is apparent that although slight differences existed between the mean normal blood glucose concentration of the three groups, the slow recovery of the blood glucose concentration in the pregnant habitual aborter group 60 minutes after insulin injection was most marked. The large standard deviations within groups (Figure 1) after insulin injection suggest considerable variation in the factors governing the blood sugar levels. Analyses of individual responses showed that the blood glucose levels of six of the twenty experimental animals had recovered only slightly or not at all 120 minutes after insulin injection. Five (35,7%) of these were in the group of 14 aborters while one (16,7%) of the normal does exhibited a similar curve.

The retarded recovery of blood glucose levels in the pregnant aborter group and of the individuals within the other groups is indicative of adrenocortical and of pituitary hypofunction. This finding concurs with the concept of collapse of the necessary level of pituitary adreno-cortical function to maintain a viable foetus, thereby terminating in abortion (van Rensburg, 1971). The large within and intra group variation in reaction to insulin indicates a gross instability of the pituitary-adrenal axis in this breed. This and the fact that nutritional stress precipitates abortion in apparently normal does (van der Westhuysen & Roelofse, 1971) suggests the widespread occurrence of this endocrinological abnormality in the Angora as discussed by van der Westhuysen & Wentzel (1971). The present results support the hypothesis of a pituitary-adrenal axis collapse due to the genetic load of this breed, and suggest that abortion could be associated with gross hypofunction of the pituitary and/or the adrenal cortex.

### References

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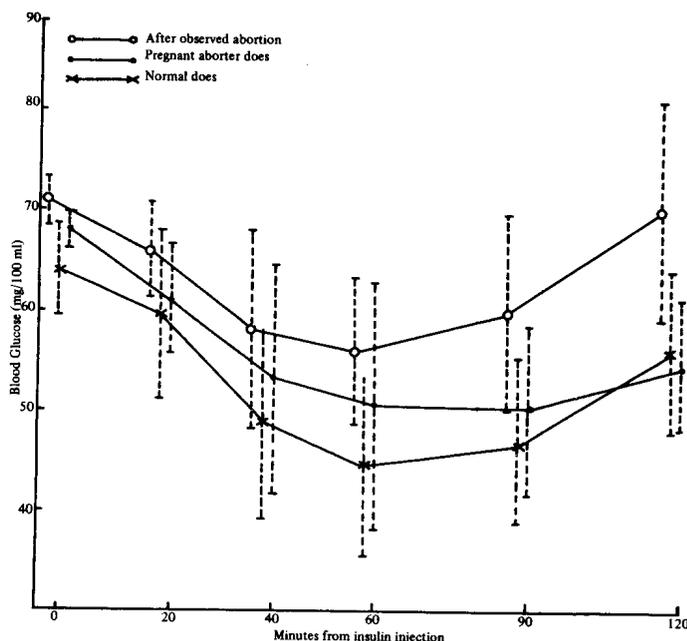


Fig. 1 - Blood glucose levels of Angora does after intravenous injection of insulin to pregnant normal, habitual aborters, and does immediately after observed abortion.