

# The effect of low-oestrogen combined pill, progestogen-only pill and medroxyprogesterone acetate on oral glucose tolerance test.

## Abstract:

The effect of a low-oestrogen combined pill, progestogen-only pill and medroxyprogesterone acetate on oral glucose tolerance test was studied in 29, 30 and 9 indigenous Kenyan women respectively. Glucose tolerance test was performed before treatment was started and then after 1,3 and 6 months in microgynon users. The mean areas under the glucose curves were also significantly elevated. Significant increase in blood glucose values were noted only at 30 minutes after 6 months of use of the progestogen-only oral contraceptive but the mean blood glucose values were higher than in the control after 1,3 and 6 months of use. However, the mean values of the areas under the glucose curves were significantly elevated after 1,3, and 6 months of use. Medroxyprogesterone acetate users showed significantly lower fasting blood glucose values at 60 and 90 minutes after 1 month of use, after which the blood glucose values returned to the pre-treatment values. The mean values of the glucose curve areas showed no significant change. It is concluded that both microgynon and minipill cause relative impairment of glucose tolerance test as early as after 1 month of use. Medroxyprogesterone acetate does not impair oral glucose tolerance for at least the first 6 months of use. The implications of these findings are discussed.

PIP: Researchers followed 68 women who attended the Family Welfare Clinic at the Kenyatta National Hospital in Nairobi, Kenya to determine if the low estrogen combined oral contraceptive (OC) Microgynon, a progestogen only OC, and Depo-Provera induce changes in the oral glucose test. These women did not take any steroidal contraceptives before entry into the study. Blood glucose levels were significantly higher after 60, 90 and 120 minutes than the control levels for women taking Microgynon. In addition, the mean areas under the glucose curves were substantially elevated after 1, 3, and 6 months above the control (p.002, .005, and .01 respectively). The only significant change in blood glucose levels in women taking the progestogen only OC occurred at 30 minutes after 6 months. Yet the mean areas under the curve were significantly higher than the control after 1, 2, and 3 months (p.005, .05 and .002 respectively). As for Depo-Provera, significantly lowered blood glucose levels only occurred after 1 month at 30, 50, and 90 minutes although no significant changes occurred after 1, 3, and 6 months in the mean areas under the glucose curves. Metabolic change occurred earlier and more often in Microgynon users than progestogen only OC users. This could be due to the progestogen levonorgestrel which has been shown to interrupt glucose metabolism. These changes could possible adversely effect women who are predisposed to developing diabetes, since 1 woman did develop a diabetic curve after 1 month of using Microgynon. Nevertheless no pattern towards abnormal glucose tolerance existed. Standard deviations of areas under the curves indicated that the number of women who develop glucose intolerance may increase with duration of use.