

**I BRIEF COMMUNICATION**  
**THE EFFECT OF CONTRACEPTIVES ON VITAMIN C**  
**METABOLISM: SPECIAL REFERENCE ON 19 -NORTESTERONE**  
**GROUP (COMBINED ESTROGEN AND PROGESTERONE**  
**TABLETS) ON ASCORBATE METABOLISM**

**Kester D. SRN .BSc .and Keshinro O. O. MSc**

Millions of women throughout the world take oral contraceptives as a convenient method for extending intra-conceptual period, preventing unwanted pregnancies or delaying the starting of family. These contraceptive tablets, if taken regularly, offer nearly 100% protection against pregnancies and hence substantially contribute to the health and social well-being of the individual. Reports has shown that there is an interaction between the steroidal contraceptives and vitamins and thus an increased demand for healthy vitamin metabolism (1,2,2,4). It is also believed that oral contraceptives act by interfering with the normal menstrual cycle, hence normal menstrual cycles are reviewed with particular reference to ascorbate metabolism. Morese, since the ascorbate nutriture of Nigerian adults has been shown to be poor (5)

Nine women and six controls between the ages 20-25 years went through this study programme. All the subjects consumed a "free" diet (that is, they practised their normal eating habit) and were all given 100gm ascorbic acid daily. The length of the menstrual cycle and the ovulation period was also estimated from personal interviews. Five days after menses began, the daily contraceptive pills consumption was resumed.

A baseline plasma ascorbate nutriture of all subjects was earlier established before the consumption of 100mg ascorbic acid daily. 10ml of fasting venous blood samples were obtained from the subjects four times within the predetermined phases of two menstrual cycles. These predetermined phases were (a) the blood samples during the menstrual bleeding and (b) the middle of the cycle which is the period of ovulation. The chemical analytical procedure involved the use of 2:4- dinitrophenyldrazine method which is a very sensitive method noted internationally for its precision. Baker and Franks' method (6) is a combination and modification of Roe's (7) and Schwartze's (8) procedures and has established the use of thiourea as a reJucer to be added specifically to avoid interference from non-ascorbate chromogens.

Table 1 shows the mean plasma total ascorbate level during both the menstrual and ovulation cycle of the central subjects.

The record shows that the ascorbate nutriture was better at mid-cycle than at menstrual period. In Table 2, the reverse was exhibited during these two predetermined periods of the test group. Their total ascorbate concentration was higher at the period of menstruation than at the mid-cycle. However, subjects 5 and 6 showed an increase in the plasma ascorbate baseline value compare to the other subjects, but similar to the control group. The reason for this is not known but it may be attributed to the fact that their ascorbate nutriture might have been good before being put on contraceptive drugs. The other test subjects had been on contraceptives for between 6 months and 5 years as shown in Table 2.

There is a significant impaired ascorbate metabolism by the oral contraceptive drugs. This is similar to what Kofeed et al. (19) reported. They found that there is a sharp increase in the plasma ascorbic acid at the middle of the menstrual cycle and a decrease at the beginning of the cycle because of the non-ingestion of these contraceptive drugs during the menstrual period. Total plasma ascorbate level was found to be high in the control group than in the test group and a reduction in their ascorbate nutriture as a result of the contraceptive drug consumption was also recorded in the test group in our study, The slight increase in the plasma ascorbic acid level during the menstrual period is as a result of the non-consumption of these drugs at this period.

Department of Human Nutrition, College of Medicine. University of Ibadan. Ibadan. Nigeria.

There is a relationship between the duration of oral contraceptive intake and plasma total ascorbate. This is confirmed by subjects 5 and 6 of the test groups as compared to the high concentration of plasma ascorbate levels observed in the control subjects during ovulation period. This was found to be a period of high luteinizing hormone secretion phase in the cycle and this corresponded with previous report by Dodds (10), who noted that there is a relationship between the blood total ascorbate level and female hormone. Table 3 shows the ascorbate nutriture of both the Test Subjects and the control groups.

Table 1: mean ascorbate level of control group during menses and mid cycle on 100 mg ascorbate supplementation daily

Subject Number	Ascorbic acid mg/100ml		
	Baseline plasma Ascorbate level Mg/100mg	(after ascorbate-supplementation Menstrual period	mid-cycle (ovulation)
+1	0.01	0.34	0.60
+2	0.15	0.40	0.80
3	0.25	0.80	0.20
4	0.30	0.80	2.20
5	0.25	0.70	1.80
6	0.40	1.90	2.40

+ Subjects 1 and 2 did not take their ascorbic acid regularly.

Table 2: men ascorbate level of test group during menses and mid-cycle of 100mg ascorbate supplementation daily

Subject Number	Baseline Plasma Ascorbate Level Mg/100ml	Duration of Contraceptive Drugs	Ascorbic mg/100ml (after ascorbate supplement) Menstrual period	mid-cycle Ovulation
1	0.10	4 years	1.30	0.56
2	0.08	5 years	0.70	0.40
3	0.19	3 years	1.008	0.58
4	0.02	5 years	0.70	0.20
5	0.25	1 month	0.70	1.00
6	0.25	1 month	0.44	1.20
7	0.18	3 years	0.80	0.70
8	0.16	3 years	1.00	0.50
9	0.09	4 years	1.10	0.44

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