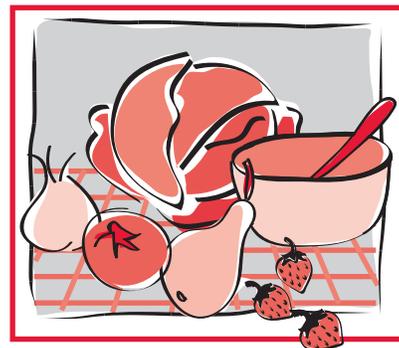


## Nutrition and Oral Contraceptives

Fact Sheet No. 9.323

Food and Nutrition Series | Health



by J.E. Anderson\*

Oral contraceptives are prescription birth control pills taken by women to prevent pregnancy. They are often referred to as “the pill.” When taken as directed, they prevent ovulation, the release of an egg by the ovary. If no egg is released, pregnancy can’t occur. The female hormones estrogen and progesterin are the agents in oral contraceptives that prevent ovulation. A progesterin-only pill (mini-pill) is also available.

Our bodies naturally produce hormones to regulate many metabolic functions. Hormones are powerful chemicals that can affect many parts of the body. Much research has been conducted to investigate other changes that occur in women who take birth control pills and who, therefore, have increased amounts of female hormones. These can include changes in general health as well as in nutritional needs.

In general, the Food and Drug Administration (FDA) advises any woman who takes birth control pills to request from her doctor, pharmacist, or health department, a government pamphlet that explains in greater detail the uses, benefits and risks of birth control pills.

In terms of nutrition, there are questions about whether women on birth control pills need different amounts of some vitamins and minerals. The vitamins in question include vitamin B-6, folic acid, riboflavin, vitamin C and vitamin A. Minerals include iron, zinc and copper.

Most research has focused on the levels of these vitamins and minerals in the blood of women who take oral contraceptives and compared to women who don’t. It is difficult to draw definite conclusions because blood analyses are not always the most accurate or sensitive measure of changes in nutritional status.

At present, there is no conclusive evidence to show that women who take birth control pills need different amounts of vitamins and minerals to prevent nutritional deficiencies. However, individual needs vary. Women on oral contraceptives should eat a well-balanced variety of foods that are good sources of vitamins and minerals.

### Vitamins

#### Vitamin B-6

Many studies indicate that B-6 metabolism is different in women who take oral contraceptives. These findings are based on blood analyses as well as on measurements of how much B-6 is lost from the body through urine. The current scientific consensus is that these differences do not warrant taking more vitamin B-6 than already recommended for women in various age groups.

Women who take oral contraceptives have a different form of vitamin B-6 in the blood. This change also occurs during pregnancy.

#### Folic Acid

In several cases, women taking oral contraceptives developed folic acid deficiency. However, it appears that many of these women had low intake of folic acid or problems with intestinal absorption prior to taking birth control pills. Women on birth control pills should regularly eat good sources of folic acid. Good folate nutrition is especially important for women who become pregnant shortly after they stop taking oral contraceptives. These women should check with their doctor or health department. The FDA recently approved an oral contraceptive containing folic acid.

### Quick Facts

- Much research has focused on the possible changes in general health and nutritional needs of women taking birth control pills.
- Research includes work on vitamin B-6, folic acid, riboflavin, vitamin C, vitamin A, iron, zinc and copper.
- There is no conclusive evidence to show that users of oral contraceptives need different amounts of vitamins and minerals.
- Plan a well-balanced diet with emphasis on good food sources of vitamins and minerals.
- Do not smoke if you take oral contraceptives.

\*Colorado State University Extension foods and nutrition specialist and professor, food science and human nutrition. 12/1998

Reviewed and revised by K. Topham and C. Fitzgerald, food science and human nutrition, C. Fitzgerald. 12/2010



Iron is one of the few nutrients in question where researchers have suggested a lower amount for women who take birth control pills. Some women using oral contraceptives lose less menstrual blood. Iron is needed to make hemoglobin, the red-colored substance in blood that carries oxygen.

### Riboflavin (Vitamin B-2)

If a woman has a riboflavin deficiency before she starts taking oral contraceptives, birth control pills will aggravate that condition. Riboflavin deficiency caused by low intake is more common among lower-income women of child-bearing age who may not have access to good food sources, such as milk, meat and dark green leafy vegetables. Women who take oral contraceptives should plan their riboflavin intake. Good but inexpensive sources include dried milk and enriched grains and cereal products.

### Vitamin C

Vitamin C can be measured in the blood's liquid or plasma portion, as well as in cellular components including platelets and white-blood cells or leukocytes. Decreases in vitamin C in plasma and cellular components have been reported in women who take birth control pills. These decreases are not well understood, but they may relate to changes in copper metabolism. However, no increase has been made in the Recommended Dietary Allowance (RDA) for vitamin C for women who take oral contraceptives beyond what is currently recommended for their age group.

### Vitamin A

A frequent finding is that blood vitamin A levels are higher in women who use birth control pills. On the surface, this might seem beneficial. Studies with animals, however, indicate that the amounts of vitamin A stored in the liver could be lower, even though the amounts circulating in the blood are higher.

## Minerals

### Iron

Iron is one of the few nutrients in question where researchers have suggested a lower amount for women who take birth control pills. Some women using oral contraceptives lose less menstrual blood. Iron is needed to make hemoglobin, the red-colored substance in blood that carries oxygen. It has been argued that if less blood is lost each month, less blood needs to be manufactured. The RDA for iron for women of childbearing age is 18 mg/day. According to the Institute of Medicine the recommendation for women taking oral contraceptives 10.9 mg/day. However, women taking oral contraception do not need to reduce the amount of iron-rich foods they eat or avoid multivitamins that contain iron.

### Zinc

Several studies have reported reduced zinc levels in blood plasma of women on birth control pills. However, the zinc levels in red blood cells are reportedly increased in oral contraceptive users. This suggests that the zinc may be redistributed in the blood of women on the pill. The meaning of these changes is not understood. At present, the RDA for zinc for users of oral contraceptives is the same as that for non-users.

### Copper

Plasma copper levels often are increased considerably in women using birth control pills. A copper-carrying protein called ceruloplasmin can destroy vitamin C by a process called oxidation. It has been

suggested that the increased blood copper levels caused by birth control pills may relate to the decreased blood vitamin C levels. This, however, is only a suggested relationship. Further research is needed.

## Nutritional Recommendations

The effects of the hormones in oral contraceptives obviously reach far beyond preventing ovulation. Much research has been and will be conducted on the changes in general health and nutritional needs of women who take birth control pills.

Today, there is no conclusive evidence that "the pill" in general alters nutritional requirements. However, this generalization assumes that women who take birth control pills have adequate diets. Women whose diets are not adequate will only aggravate or worsen nutritional problems with birth control pills. This is especially true for women with inadequate diets who become pregnant after they stop taking birth control pills.

The best general advice for a woman on birth control pills is to plan a diet that regularly includes moderate amounts of a variety of foods, including good sources of the vitamins and minerals discussed earlier. Table 1 lists good dietary sources of these nutrients.

## Beyond Nutrition

One of the most important pieces of advice for a woman on oral contraceptives is not related to food at all. The advice is: **Do not smoke.**

**Table 1. Good dietary sources of vitamins and minerals.**

Nutrient	Good Sources
Vitamin B-6	Fish, poultry, meat, whole grains, potatoes, sweet potatoes, brewer's yeast.
Folic acid	Liver, dark green leafy and stem vegetables, dried beans.
Riboflavin	Milk, meat, poultry, fish, dark green leafy vegetables, organ meats, enriched grains and cereals.
Vitamin C	Citrus fruits and juices, strawberries, cantaloupe, pineapple, broccoli, peppers, brussels sprouts, spinach, cabbage.
Vitamin A	Green leafy vegetables (spinach, turnip tops, chard, beet greens), green stem vegetables (asparagus, broccoli), yellow vegetables (carrots, sweet potatoes, winter squash), yellow fruits (apricots, peaches, cantaloupe).
Iron	Meat, poultry, liver, fish, whole grain and enriched cereals and cereal products, dried beans and peas, prune juice, deep green leafy vegetables.
Zinc	Oysters and other seafood, meat, nuts, whole grain breads.
Copper	Oysters and other seafood, liver, nuts, dried beans and peas, dried fruits.

According to the Food and Drug Administration, “cigarette smoking increases the risk of serious adverse effects on the heart and blood vessels from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should not smoke.

## References

- NRC (National Research Council, Food and Nutrition Board, Committee on Dietary Allowances). 1989. Recommended Dietary Allowances. National Academy of Sciences, Washington, D.C.
- NRC (National Research Council, Food and Nutrition Board, Committee on Dietary Allowances). 1998. Second DRI Report. National Academy of Sciences, Washington, D.C.
- Krause's Food, Nutrition and Diet Therapy. 9th edition. W.B. Saunders Co. 1996.
- Institute of Medicine or the National Academies, Subcommittee on Interpretation and Uses of Dietary Reference Intakes and Standing Committee on the Scientific Evaluation of Dietary Reference Intakes. Dietary reference intakes: application in dietary planning. National Academic Press. 2003.