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A Look at the Diet of Pregnant Women

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Good nutrition is very important for pregnant women. Deficiency of certain nutrients in the diet can lead to such adverse effects as anemia and fetal neural tube defects. Considerable scientific evidence shows that diet is related to pregnancy outcome and frequency of complications. Demonstrating the importance of good maternal nutrition, the U.S. Department of Agriculture (USDA) administers a Special Supplemental Nutrition Program for Women, Infants and Children (WIC) through which low-income women at nutritional risk who are pregnant or postpartum can obtain healthful foods to supplement their diet. WIC also provides nutrition education and referrals to other services including health care. With the WIC supplemental foods, pregnant women should be able to meet all their nutritional needs. With WIC vouchers, participants can buy milk, cheese, cereals, fruit juices, dried beans, and selected other foods. Recently some WIC programs have started providing vouchers for fresh fruits and vegetables through a farmer's market program.

To examine the nutrient status of WIC participants, the USDA Center for Nutrition Policy and Promotion (CNPP) has conducted a study of the dietary intake of participants. The study, *Review of the Nutritional Status of WIC Participants* (CNPP, 1999), revealed that pregnant and postpartum women were not consuming the recommended amount of several

important nutrients, including iron, calcium, folic acid, zinc, and magnesium. That research is extended here to examine the quality of the diet by assessing consumption of milk products, grains, fruits, vegetables, and meat—the five food groups of the USDA's Food Guide Pyramid (USDA, 1992) and how well recommendations for total fat, saturated fat, cholesterol, and sodium intake are met. This *Nutrition Insight* describes the diet of pregnant women participating in the WIC program and low-income and higher income women.

The Food Guide Pyramid and Special Considerations for Pregnant Women

The number of servings of the Pyramid food groups consumed have now been calculated for respondents to the Third National Health and Nutrition Examination Survey 1988-94 (NHANES III) as a part of the calculation of Healthy Eating Index (HEI) scores (National Center for Health Statistics). Pregnant women can use the numbers of servings of food groups recommended by the Food Guide Pyramid (3 servings of milk products) as a start for planning a healthy diet. Women should consult their health care provider for individual advice.

Pyramid Food Group Servings

Figure 1 shows the average number of servings of each of the Pyramid food groups by pregnant women in NHANES III: those participating in the WIC program, those not participating in WIC with income less than 185 percent of the nationally adjusted Federal poverty level (the cutoff value for participation in WIC programs), and those with income at or above 185 percent of the poverty level. (All results reflect population-weighted values.) Differences in mean number of servings consumed were statistically significant for vegetables and milk products. The above poverty group ate significantly more vegetables (3.1 servings) than did the non-WIC below poverty group (2.1 servings). WIC participants consumed significantly fewer servings of milk (2.3) than the above poverty pregnant women consumed (3.2). For fruits and vegetables, the WIC participants appear more comparable to the above poverty group and consume more than the non-WIC below poverty group.

The Food Guide Pyramid makes recommendations on numbers of servings for different energy intake levels, with specific advice for pregnant women to consume 3 servings of milk. Table 1 shows recommended servings at three calorie levels from the Pyramid. USDA suggests active, non-pregnant women consume about 2,200 kilocalories per day (USDA, 1992). All groups of pregnant women in NHANES III consumed less than the recommended number of Pyramid servings based on a 2,200 kilocalorie diet.

Fat, Saturated Fat, Cholesterol, and Sodium Intake

General recommendations for limiting intake of fat, cholesterol, and sodium are the same for pregnant women as for the general population (USDA and

Figure 1. Mean number of servings eaten in 1 day for five food groups: Pregnant women

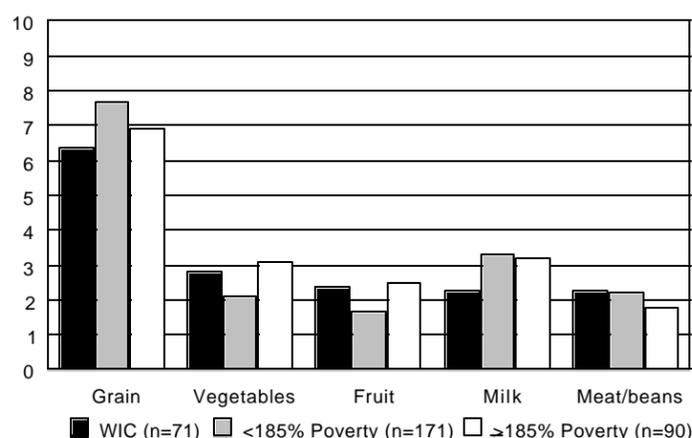


Table 1. Food Guide Pyramid recommended servings for 3 sample calorie intake levels

	Calorie level		
	1,600	2,200	2,800
Bread (grain) group	6	9	11
Vegetable group	3	4	5
Fruit group	2	3	4
Milk group (pregnant women)	3	3	3
Meat group (ounces)	5	6	7

USDHHS, 1995). All groups of pregnant women in this study consumed more than the recommended percentage of calories from fat and saturated fat (table 2). Pregnant women in the WIC program consumed lower percentages of total calories from fat, saturated fat, and cholesterol than did both the low-income pregnant women and women above 185 percent of the poverty level. Reference values for intake of cholesterol and sodium are based on the *Daily Values* from Nutrition Facts Labeling. All groups exceeded the sodium reference value, and only the

non-WIC below 185 percent of the poverty group exceeded the reference intake value for cholesterol. The below poverty group consumed significantly more cholesterol than the above 185 percent of poverty group (table 2, 317 mg vs. 237 mg).

Nutrient Supplementation

Prenatal supplements are routinely recommended for pregnant women. Considerable evidence shows that periconceptional use of folate or

Table 2. Fat, saturated fat, cholesterol, and sodium intake in 1 day

	Reference value	WIC participants	Below 185% poverty (not on WIC)	Above 185% poverty
% calories from fat	<30%	32.6	34.2	36.2
% calories from saturated fat	<10%	12.1	12.8	13.1
Cholesterol (mg)	<300 ^b	273	317 ^a	237 ^a
Sodium (mg)	<2400 ^b	3593	3940	3372

^a p<.05.

^b Based on *Daily Value* from Nutrition Facts Labeling.

multivitamins protects against the occurrence of fetal neural tube defects. Additional iron requirements in pregnancy cannot be met through diet alone and should be attained through supplements containing iron. More iron is needed for both fetal demands and the large increase in maternal blood volume.

Respondents in NHANES III were asked detailed questions about supplement use. A large percentage of all three groups of pregnant women did not report taking daily supplements containing iron and folate for at least 1 month (table 3).

References

Kramer-LeBlanc, C.S., Mardis, A.L., Gorrion, S.A., and Gaston, N.W. 1999. *Review of the Nutritional Status of WIC Participants: Final Report*. U.S. Department of Agriculture, Center for Nutrition Policy and Promotion.

National Research Council, Commission on Life Sciences, Food and Nutrition Board, Subcommittee on the Tenth Edition of the RDAs. 1989. *Recommended Dietary Allowances*, 10th ed. National Academy Press, Washington, DC.

U.S. Department of Agriculture, Human Nutrition Information Service. 1992. *The Food Guide Pyramid*. Home and Garden Bulletin No. 232.

U.S. Department of Agriculture and U.S. Department of Health and Human Services. 1995. *Nutrition and Your Health: Dietary Guidelines for Americans, Fourth Edition*. Home and Garden Bulletin No. 252.

Table 3. Average percentage of groups of pregnant women who took supplements at least once a day for at least 1 month

Daily supplement use	WIC participants	Below 185% poverty	Above 185% poverty
Took a multivitamin with any iron	43	52	64
Took a multivitamin with at least 30 mg iron	42	47	36
Took a multivitamin with any folic acid	41	55	63
Took a multivitamin with at least 400 mcg folic acid	41	55	63