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ABSTRACT

Designed to provide accurate and up-to-date information about nutrition and health, this booklet is centered on the nutritional needs of pregnant and lactating adolescents and on the role of schools and the California State Department of Education in meeting those needs. The first section presents information for pregnant adolescents regarding nutritional requirements, eating habits and dietary patterns, substances to avoid, significance of weight gain, and psychosocial factors of nutritional habits. Nutritional needs of lactating adolescents are discussed in the next section, followed by a section considering the role of the schools and the state departments of education. Recommended readings, audiovisual aids, and selected references conclude the document. (CB)

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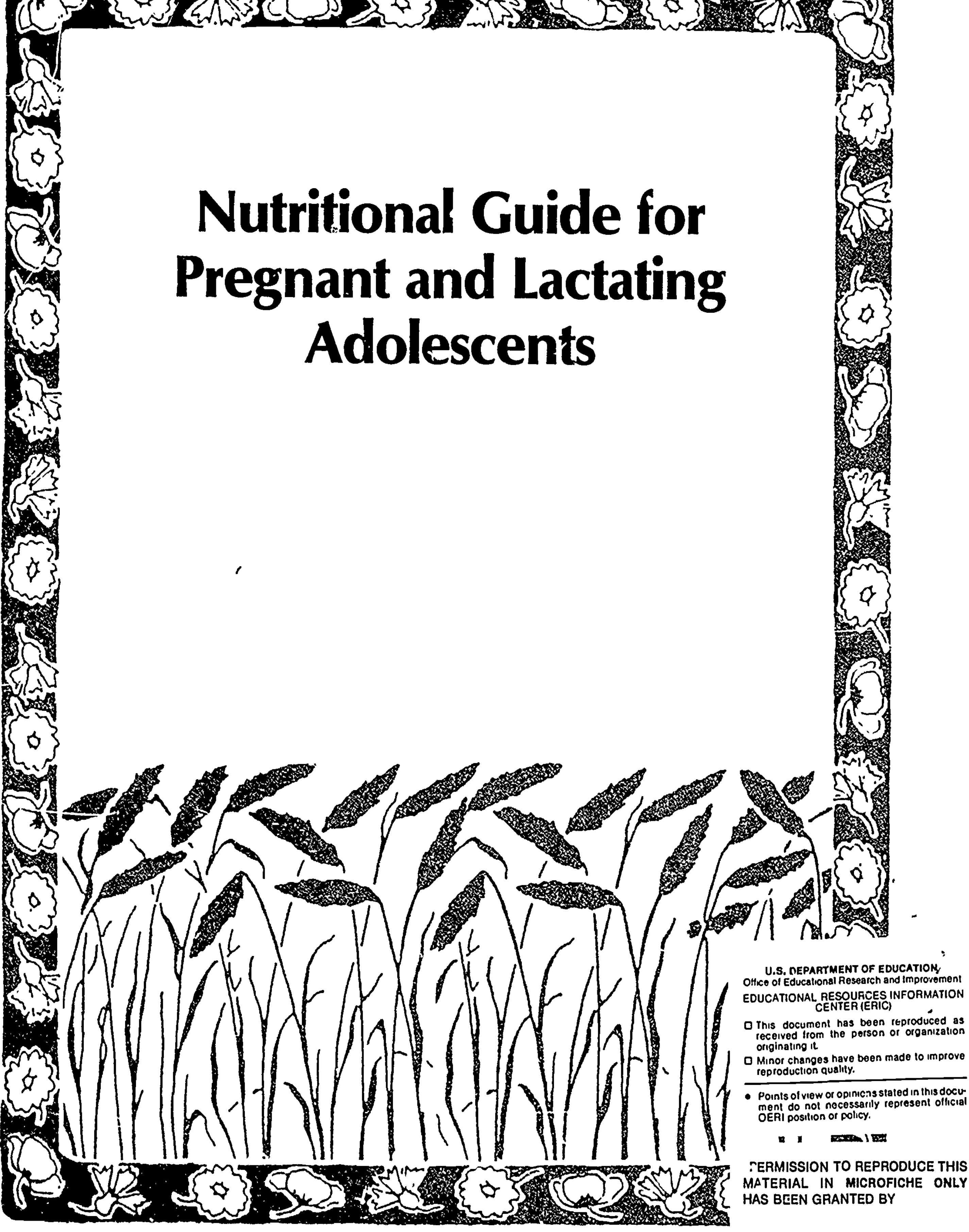

Nutritional Guide for Pregnant and Lactating Adolescents

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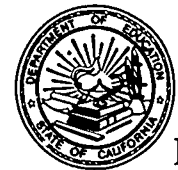

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PREFACE

The lives of adolescents are filled with physical and psychological changes. When the physical, psychosocial, and emotional changes resulting from pregnancy are added to the other changes occurring in their lives, female adolescents are confronted with many new situations and require support from many sources, including schools. Receiving such support is essential so that they can give birth to and continue to care for healthy infants. Schools can support pregnant adolescents by offering them a comprehensive, multidisciplinary approach to learning about nutrition and health that can help ensure the health of both mothers and children.

This publication, designed to provide accurate and up-to-date information about nutrition and health, is centered on the nutritional needs of pregnant and lactating adolescents and on the role of schools and the Department of Education in meeting those needs.

The Department acknowledges the contributions of Nancy Gelbard, who wrote the original manuscript, and Valerie Sakai, Associate Governmental Program Analyst, School Nutrition Programs Unit, Child Nutrition and Food Distribution Division, who coordinated the publication of this document.

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INTRODUCTION

The number of adolescent girls who become pregnant is increasing each year in the United States, with California experiencing the second highest adolescent pregnancy rate among the states. This year more than a million adolescent girls in the United States will become pregnant, and over half of them will continue their pregnancies and become mothers. The problems they will encounter will affect both them and their babies as well as members of the community who must deal with the medical, educational, and economic repercussions of such pregnancies.

Many problems faced by pregnant adolescents result from inadequate medical care. Most pregnant adolescents receive no prenatal care in the first trimester of pregnancy, and 20 percent receive no care until the last trimester. They are more likely to have anemia, toxemia, and complications related to premature births than mothers ages twenty to twenty-four. Compared to the death rate of women in their early twenties, the maternal death rate is 60 percent higher for adolescents age fourteen years and under and 35 percent higher for adolescents fifteen to nineteen years old. Teenagers are 30 percent to 50 percent more likely to deliver low-birth-weight babies, who often are born with serious mental, physical, and developmental problems that may require costly medical care. These infants are two or three time more likely to die in the first year than those born to mothers in their twenties. In addition, about 15 percent of pregnant teenagers become pregnant again within one year, and 30 percent become pregnant again within two years. Since perinatal risks increase with each additional birth, older teenagers may be at greater risk in their second pregnancy than younger girls who are pregnant for the first time.

Adolescent pregnancies result in educational and economic disadvantages for young mothers and their infants. Eighty percent of teenage mothers do not graduate from high school. Teenage mothers are more likely than other women with young children to live below the poverty level and are more likely than other young women with children to be dependent on welfare. Seventy-one percent of females under thirty years of age who receive Aid to Families with Dependent Children (AFDC) had their first pregnancy as a teenager.

Adolescence is a time of constant physical, emotional, and psychosocial change, and pregnancy contributes to stresses that can arrest the normal development of pregnant teenagers and their babies. Normal adolescent behavior can interfere with the parenting role. Pregnant teenagers face crisis periods in which they must deal with such issues as their sense of worth as individuals, their ability to be successful parents, and the turmoil in their relationships with other significant people in their lives. These problems, as well as those listed in Figure 1, influence the nutritional well-being of pregnant teenagers.

Pregnant adolescents' nutritional habits are among the most important factors affecting their health and the health of their babies. Adolescence is a time of rapid growth. When adolescents are also pregnant, nutritional risks and requirements increase significantly. Schools can help pregnant adolescents understand the changes they are experiencing and the need to develop good nutritional habits to cope effectively with these changes and to help ensure their health as well as the health of their children.

Acceptance of the Pregnancy

Desire to carry out successful pregnancy
Acceptance of responsibility (even if child is to be relinquished)
Clarification of identity as mother separate from her own mother
Realistic acceptance versus fantasy and idealization

Food Resources

Family meals (timing, quantity, quality, responsibility)
Self-reliance
School lunch
Fast-food outlets
Socially related eating
Food assistance (WIC program and others)
Mobilization of all resources

Body Image

Degree of acceptance of an adult body
Maturity in facing bodily changes throughout pregnancy

Living Situation

Acceptance by living partners and extended family
Role expectations of living partners
Financial support
Facilities and resources
Ethnic group (religious, cultural, and social patterns)
Emancipation versus dependency
Support system versus isolation

Relationship with the Father of Child

Presence or absence of father
Quality of relationship
Influence on decision making
Contribution to resources
Influence on mother's nutritional habits and general life-style
Understanding of physiological processes
Tolerance of physical changes in pregnancy and physical needs of mother and child
Influence on child feeding

Peer Relationships

Support from friends
Influence on nutritional knowledge and attitudes
Influence on general life-style

Nutritional State

Weight-for-height proportion
Maturational state
Tissue stores of nutrients
Reproductive and contraceptive history
Physical health
History of dietary patterns and nutritional status, including weight-losing schemes
Present eating habits
Complications of pregnancy (nausea and vomiting)
Substance use
Activity patterns
Need for intensive remediation

Prenatal Care

Initiation of and compliance with prenatal care
Dependability of supporting resources
Identification of risk factors.

Nutritional Attitude and Knowledge

Prior attitude toward nutrition
Understanding of role of nutrition in pregnancy
Knowledge of foods as sources of nutrients and of nutrients needed by the body
Desire to obtain adequate nutrition
Ability to obtain adequate nutrition and to control food supply

Preparation for Child Feeding

Knowledge of child-feeding practices
Attitude and decisions about child feeding
Responsibility for feeding
Understanding the importance of the bonding process
Support from family and friends

Source: Reproduced with permission of Jane Mitchell Rees and Bonnie Worthington Roberts, authors of "Adolescence, Nutrition, and Pregnancy: Interrelationships," in *Nutrition in Adolescence*, by L. Kathleen Mahan and Jane Mitchell Rees (St. Louis: Times Mirror/Mosby College Publishing, 1984).

Fig. 1. Problems that influence the nutritional well-being of pregnant adolescents

NUTRITIONAL NEEDS OF PREGNANT ADOLESCENTS

Adolescence is a period of accelerated growth marked by increased nutritional and caloric demands. Teenagers who are pregnant can easily deplete their nutritional reserves and compromise their health and the health of their babies.

Unfortunately, although adolescents' nutritional needs are greater during pregnancy, they often have irregular eating habits and do not satisfy their increased nutritional requirements. In addition, they eat fewer meals at home and consume more meals at fast-food establishments. Many pregnant adolescents (some surveys indicate close to half) skip breakfast--a critical meal for pregnant mothers and their babies--and other meals and eat snack foods instead. In fact, for this age group, approximately 25 percent of the calories consumed are obtained through eating snacks that are high in sugar, salt, and fat and low in other nutrients.

Nutritional Requirements

Little information is available on the nutritional needs of pregnant teenagers. Estimates are made by adding the increased needs for pregnant women to the Recommended Dietary Allowances (RDA) for nonpregnant teenagers. But the RDAs are based on chronological age and do not account for the physical maturity of the adolescent. It is important to emphasize to pregnant teenagers that their nutritional needs have increased and that an adequate diet is important (1) to provide for optimal growth of their fetuses; and (2) to maintain or improve their nutritional status during and after gestation. The following information about the nutritional requirements of pregnant adolescents may be useful in understanding the importance of nutrition during pregnancy.

Sufficient Caloric Intake

Sufficient caloric intake is the first nutritional requirement of pregnant adolescents. It provides energy and influences the utilization of protein and the growth of pregnant adolescents as well as their babies. Caloric needs vary according to growth patterns, body build, and exercise habits. Although approximately 300 extra calories per day during the last 30 weeks of pregnancy are recommended, the best indicator of an appropriate caloric intake is weight gain. And while more research is needed to determine the specific amount of weight pregnant adolescents should gain, a 25- to 35-pound gain is considered appropriate.

Adequate Amounts of Protein

Protein is essential for tissue formation and growth. For protein to be utilized for growth, however, adequate calories must be consumed. An inadequate caloric intake results in protein being used for energy rather than growth. Good sources of protein include beef, lamb, pork, poultry, fish, eggs, dried beans and peas, and tofu.

Surveys indicate that most adolescent females receive adequate protein in their diets. However, pregnant adolescents from low-income families are at risk because their diets do not include adequate sources of protein. These adolescents should be educated about low-cost sources of protein and, if necessary, referred to the Women, Infants, and Children Supplemental Feeding Program (WIC), which is sponsored by the California State Department of Health Services.

Increased Amounts of Calcium

Calcium is a particularly critical nutrient for pregnant adolescents. Yet studies show that even nonpregnant adolescents in North America regularly consume less than two-thirds the RDA of calcium. Calcium is essential to support normal growth and development of fetuses, provide for the teenagers' own growth, and maintain adequate calcium stores. Pregnant teenagers who do not consume dairy products are particularly at risk of inadequate calcium intake. Rather than relying on a calcium supplement, pregnant adolescents should include more foods containing calcium in their diets for two reasons: (1) the absorption rate of calcium in food is better than that of supplements; and (2) excluding dairy products also excludes a major source of protein. Because calcium supplements do not contain protein, pregnant teenagers who take a calcium supplement must ensure that they take the recommended level. Figure 2 includes the names of foods that contain a high amount of calcium.

Increased Amounts of Iron

Pregnant teenagers are 92 percent more likely to have anemia than mothers ages twenty to twenty-four years, in part because they generally consume a diet that is low in iron. In addition, during pregnancy blood volume increases by approximately 50 percent--the equivalent of four pints of additional blood. Frequently, this combination of factors results in iron deficiency anemia.

Iron is essential for the formation of hemoglobin, which carries oxygen from the lungs to the body tissues. Lack of this nutrient, or anemia, results in depression, lack of appetite, increased fatigue, infections, and postpartum hemorrhages. Also, low maternal iron stores may result in iron deficiency anemia for infants during the first year of life.

These foods contain about 300 mg of calcium.

- 1 cup milk— buttermilk low fat, whole or skim
- 5 corn tortillas
- 1⅓ cups cottage cheese
- 1½ ounces cheese, cheddar, swiss, colby, jack
- ⅓ cup dry milk powder
- 1 cup plain yogurt
- 8 ounces tofu (soy bean curd)
- 3 ounces sardines
- 1½ cup ice-cream or 1 cup ice-milk
- 1 cup greens, collards, mustard greens, turnip greens, kale
- 1 cup pudding or custard made with milk
- 2 cups broccoli

Reproduced through the courtesy of the California State Department of Health Services.

Fig. 2. Names of foods that contain high amounts of calcium

It is difficult for pregnant adolescents to meet the requirement for iron through diet alone. Consequently, the daily use of iron supplements (prescribed by health professionals) that provide an additional 30 to 60 milligrams of iron is recommended. Figure 3 contains names of foods that contain high amounts of iron.

Adequate Amounts of Folic Acid

Folic acid is difficult for pregnant teenagers to obtain from their diets. However, folic acid is an essential nutrient and assists in the reproduction of cells or growth at the most basic level. A daily supplement, usually included in prenatal vitamins, is recommended. Figure 4 includes the names of foods that are good sources of folic acid.

The names of pamphlets that contain information about the nutrients that are discussed in this section are included in the Recommended Readings and Audiovisual Aids section at the back of this publication.

Eating Habits and Dietary Patterns

Adolescents are known for their unusual eating habits. They commonly skip meals; eat out frequently, particularly at fast-food restaurants; and rely on snacks. However, pregnant teenagers often are willing to change some of these habits if they understand that their babies will benefit.

Pregnant teenagers need to understand that skipping meals is particularly harmful to their unborn babies. Pregnant teenagers should know that if they do not eat, neither do their unborn babies. Eating breakfast is especially important. With some teenagers, a mere reminder of the importance of not skipping meals during pregnancy motivates them to make a change. Pregnant teenagers should know that breakfast need not be composed of "breakfast foods" but instead could include pizza, peanut butter toast, or leftovers.

Pregnant adolescents who frequently eat at fast-food restaurants should be educated on how to make wise choices. Pregnant teenagers should be given information on which fast foods are healthiest and suggestions for how to get the most nutrients for the least calories. Providing teenagers with examples of good snack foods and bad snack foods also can be particularly beneficial since snack foods constitute roughly 25 percent of teenagers' total caloric intakes. Snacking should not be thought of as a bad habit. Rather, the quality of snacks should be emphasized since small, frequent meals or snacks are recommended during the latter part of pregnancy.

To obtain the appropriate nutrients, pregnant adolescents should eat items from the food groups included in Table 1 each day in the amounts recommended.

In addition to eating foods from Table 1, pregnant adolescents should take daily a prenatal vitamin/mineral supplement prescribed by their health care professional. The supplement should include iron, folacin, and trace minerals. Pregnant teenagers also should be encouraged to take a separate iron supplement (if prescribed) because of the particularly high incidence of anemia in pregnant teenagers.

Protein Foods

IRON

mg	
10	Oysters, 3 large
5	Liver, beef, cooked, 2 oz.
	Beans, 1 cup cooked
5	Red, kidney, pinto
4	Blackeyed peas
3	Lentils
3	Chili con carne with beans, 1 cup
2½	Pork, cooked, 2 oz.

2	Beef, cooked, 2 oz.
2	Eggs, 2
2	Peanut butter, 4 Tablespoons
2	Soup, split pea or bean with pork, 1 cup
2	Tofu, ¼ cup
1	Poultry, cooked, 2 oz.
1	Tuna, ¼ cup
1	Hot dog, 2 average cooked
1	Peanuts, 2 Tablespoons

Milk and Milk Products

Contain very little iron

- Milk
- Cheese
- Cottage Cheese
- Yogurt
- Ice Cream

Breads and Cereals

IRON

mg	
18	Most®, Product 19®, Total®, ¾ cup
8	Buckwheats®, Kix®, ¾ cup
8	Cream of Wheat®, Malt-O-Meal®, Wheathearts®, cooked, ½ cup
6½	Iron-fortified infant cereals, 4 Tbsp., dry
4½	All Bran®, Bran Chex®, Life®, 40% Bran Flakes®, Wheat Chex®, Cheerios®, Grapenut Flakes®, Raisin Bran®, Special K®, Wheaties®, ¾ cup
2½	100% Bran®, ¾ cup

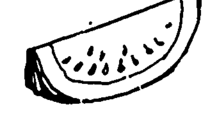
2	Rice Chex®, Rice Krispies®, Corn Flakes®, ¾ cup
1	Flour tortillas, 1 average
½–1	Rice, brown or enriched white, cooked, ½ cup
½	Wheatena®, Oatmeal, cooked, ½ cup
½	Corn tortillas, small 6"
½	Bread, whole wheat or enriched, 1 slice
½	Noodles, spaghetti, enriched cooked, ½ cup

Brand names will differ in iron content. Check labels to see if the cereal is iron fortified.

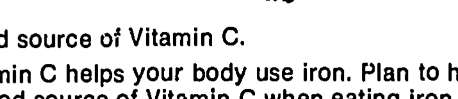
Fruits and Vegetables

IRON

mg	
4½	Prune juice, ½ cup
3	Watermelon, 1 slice



2	Prunes, 5 medium
2	*Spinach, ½ cup cooked
2	Greens, ½ cup cooked
1½	Dates, 5 medium
1½	Peas, ½ cup cooked
1	Raisins, ¼ cup
1	Apple juice, ½ cup
1	Banana, 1 medium
1	*Broccoli, 1 stalk or ½ cup
1	Green beans, ½ cup cooked
1	*Potato, sweet or white, baked, 1 medium
1	*Strawberries, ¾ cup
½	*Tomato, 1 medium raw
½	*Tomato juice, ½ cup
½	Apple, 1 medium
½	*Cantaloupe, honeydew, ¼ melon
½	*Orange, 1 medium
½	*Orange juice, ½ cup
½	Corn, ½ cup
½	Carrots, ½ cup



*Good source of Vitamin C.

Vitamin C helps your body use iron. Plan to have a good source of Vitamin C when eating iron foods.

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Fig. 3. Names of foods that contain high amounts of iron

DEEP GREEN LEAFY VEGETABLES

SPINACH
TURNIP GREENS
ASPARAGUS
BROCCOLI
ROMAINE LETTUCE
KALE

LEGUMES

LENTILS
DRY BEANS
DRY LIMA BEANS

WHOLE GRAINS

WHEAT BRAN
WHEAT GERM

ORGAN MEATS

LIVER
KIDNEY

NUTS

WALNUTS
PEANUTS

OR COMBINE SOME OF THESE

ORANGE JUICE
BRUSSEL SPROUTS
WAX BEANS
SNAP BEANS
OKRA
PEAS

EGGS
CABBAGE
CAULIFLOWER
BEETS
ENDIVE
ESCAROLE

DATES
SHREDDED WHEAT
OATS
BROWN RICE
COTTAGE CHEESE

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Fig. 4. Names of foods that contain high amounts of folic acid

Table 1. Daily Food Guide for Pregnant Adolescents

FOOD GROUP	QUANTITY FOR ONE SERVING	SERVINGS NEEDED
milk and milk products	1 cup milk 1 ½ oz. cheese 1 ½ cup cottage cheese 1 ½ cup ice cream 1 cup yogurt	4*
protein foods	2 oz. cooked meat, fish, poultry 2 eggs 1 cup cooked beans ¼ cup peanut butter ¼ cup tuna ½ cup nuts or seeds	4
breads and cereals	1 slice bread 1 tortilla ½ cup hot cereal, cooked ¾ cup cold cereal ½ cup rice, noodles, or pasta	4*
dark green vegetables	1 cup raw or ¾ cup cooked spinach, broccoli, brussels sprouts, greens, romaine or red lettuce	1
vitamin C fruits and vegetables	¾ cup juice 1 medium orange ½ grapefruit ¾ cup broccoli, bell pepper, cabbage	1+
other fruits and vegetables	½ cup raw or cooked 1 medium fruit or vegetable: corn, peas, green beans, squash, apple, banana, carrots, potato	1

*For pregnant teenagers under 17 years of age, increase to five servings.

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Teenagers will often say, "It doesn't matter if I don't eat well, because I take my supplement." However, supplements do not contain calories or protein. In addition, supplements do not contain the complete daily requirement of vitamins or minerals. Since vitamins and minerals are absorbed better when they are obtained through food rather than in pill form, vitamin/mineral supplements should be considered as a supplement to good nutrition, not a substitute for a good diet.

Pregnant teenagers should be advised not to restrict their intake of salt. Many years ago, restricting the intake of salt was a routine part of dietary recommendations during pregnancy. Today, however, the intake of salt should not be restricted. In fact, restricting the intake of salt can be dangerous because salt is a necessary component of pregnant adolescents' diets. Pregnant adolescents should salt their food to taste and not unduly restrict their intake. Of course, pregnant teenagers should be told that excessive use of salt is not healthy.

Substances to Avoid

It was once thought that the placenta completely protected the unborn baby from harmful substances. However, this is not the case. The effects of many substances, including alcohol, cigarettes, drugs, and caffeine, pass through the placenta and may be harmful or lethal to the fetus. Information on the effects of these substances follows.

Alcohol

Alcohol is harmful to adolescents whether or not they are pregnant, and they should be discouraged from using alcohol. However, although information exists about the harmful effects of alcohol, it still is not determined exactly how much alcohol is harmful or lethal to the fetus. Pregnant adolescents should be aware that it is not known "how much alcohol is too much." The Surgeon General reported that significant increases in spontaneous abortions have been documented in women who drank as little as 2 ounces of absolute alcohol two times per week. Pregnant teenagers who drink 1 to 5 ounces of absolute alcohol per day risk giving birth to low-birth-weight babies, having miscarriages, or lowering the intelligence of their children. Pregnant teenagers who drink 5 or more ounces per day risk giving birth to infants who suffer from fetal alcohol syndrome, a pattern of physical and mental birth defects. Because of these potential problems, pregnant adolescents who do not wish to eliminate the use of alcohol entirely should eliminate the use of alcohol during pregnancy. Even "social drinking" should be avoided.

Cigarettes

Many adolescents, including those who are pregnant, smoke cigarettes. This habit can be harmful to all smokers but especially to pregnant adolescents who smoke. In one study of 406 pregnant adolescents, 43 percent were smokers. Pregnant teenagers should be educated about the risks of smoking during pregnancy.

When pregnant adolescents smoke, their babies smoke, too. Smoking increases the likelihood of spontaneous abortions. Smoking results in 50 percent more premature deliveries and twice as many low-birth-weight babies among teenagers who smoke than among those who do not smoke. In addition, smoking may have long-term effects on children's mental and physical well-being.

The number of cigarettes pregnant adolescents smoke can significantly affect their unborn babies. Studies show that the birth weight of babies is proportional to the number of cigarettes smoked by their mothers. Evidence suggests that mothers who stop smoking or significantly reduce their smoking by the fifth month of pregnancy spare their babies possible damage.

If pregnant adolescents cut down or cut out smoking, they deserve praise and positive reinforcement. They have carried through a major change in their life-styles to help ensure that they give birth to healthy babies.

Drugs

Although many teenagers use drugs, they should be encouraged not to use them. Drugs can be harmful to them and, if they are pregnant, to their unborn babies. During their pregnancies many teenagers use a variety of street drugs, medications, and/or vitamins. Unfortunately, not much is known about the specific effects of street drugs on their unborn babies. Consequently, pregnant adolescents should be counseled not to use these drugs during their pregnancies.

Teenagers should be reminded that nonprescription medications can be just as dangerous to their unborn babies as prescription drugs. Consequently, any medication, whether an over-the-counter medication or a medication obtained through a prescription, should not be taken unless pregnant teenagers check with their health care professional.

Excessive dosages of vitamins also can be harmful. Therefore, pregnant adolescents should be discouraged from taking vitamins or minerals unless prescribed by their health care professional.

Caffeine

Many pregnant adolescents consume some form of caffeine every day--coffee, tea, chocolate, soft drinks, and some medications. Caffeine may be detrimental because caffeine stimulates the central nervous system. Consequently, caffeine has the same effect on their unborn babies as a drug.

The Surgeon General of the United States and the federal Food and Drug Administration advise pregnant adolescents to use products containing caffeine sparingly. Providing pregnant adolescents with acceptable alternatives to caffeine, such as beverages that do not contain caffeine, may help them to decrease their intake of caffeine. Pregnant adolescents should be encouraged to diminish their intake of caffeine gradually to avoid withdrawal symptoms, such as headaches.

The Significance of Weight Gain

Many pregnant teenagers fear getting fat, and all teenagers want to leave the hospital in their "regular-size" clothes. However, pregnant teenagers should understand the importance of gaining an appropriate amount of weight during pregnancy. The amount of weight they gain during pregnancy is the most critical factor in determining the weight of their infants at birth. The second most critical factor in determining the weight of their infants is their prepregnancy weight.

To understand weight gain, pregnant teenagers must understand the following three components of weight gain: (1) prepregnancy weight; (2) total weight gain; and (3) rate of weight gain.

Prepregnancy Weight

Pregnant teenagers begin their pregnancy either under, over, or at their appropriate weights. Girls who were underweight (10 percent below their ideal body weights) at conception are at greater risk than girls who were at their appropriate weights. Girls who were underweight at conception should be encouraged to gain weight by increasing their food intake.

Obese adolescents also should be encouraged to increase their food intake and gain weight during their pregnancies. Consequently, during their pregnancies, adolescents should not go on weight reduction diets. Weight reduction diets can, in fact, be harmful to their fetuses if dieting results in an extremely low caloric intake. Thus, weight gain is essential for obese girls; however, obese adolescents should not gain as much weight as girls who are underweight or at their appropriate weight at conception.

Total Weight Gain

The total amount of weight pregnant teenagers should gain depends on their weights prior to conception. While additional studies are needed regarding weight gain for adolescents during pregnancy, girls who began their pregnancies at their ideal body weights should gain about 25 to 35 pounds. Underweight teenagers should be encouraged to gain about 30 to 35 pounds. It is worth noting that the infant mortality rate doubles with a gain of less than 15 pounds.

Figure 5 contains information about the distribution of weight gained during pregnancy.

Rate of Weight Gain

The rate at which pregnant adolescents gain weight during pregnancy may be more important than the total amount of weight they gain. Underweight adolescents should gain approximately 4 to 6 pounds during their first trimester and approximately 1 pound per week for the remainder of their pregnancies.

BREAST INCREASE 1-3 POUNDS
BLOOD INCREASE 4½-5 POUNDS
MATERNAL STORES 4-8 POUNDS
PLACENTA 1-2 POUNDS
AMNIOTIC FLUID 2-3 POUNDS
FETUS 7½-8 POUNDS
UTERUS INCREASE 2-5 POUNDS

AVERAGE: 24-28 POUNDS*

*These figures indicate the recommended weight to be gained by pregnant adults. The recommended weight to be gained by pregnant adolescents ranges from 28 to 35 pounds.

Fig. 5. Illustration of the distribution of the recommended weight to be gained during pregnancy

Adolescents who began their pregnancies at their ideal weights should gain 2 to 6 pounds during their first trimester and then 3/4 to 1 pound per week during their second and third trimesters. Overweight adolescents should gain 2 to 4 pounds during their first 13 weeks of pregnancy and gain 1 and 1/2 to 1 and 3/4 pounds per week thereafter.

Many pregnant teenagers begin prenatal care halfway through their pregnancies and already have gained 20 pounds. Pregnant teenagers should be encouraged to continue to gain weight at this time; however, they should be told to gain only about 1 and 1/2 to 1 and 3/4 pounds per week. Since the fetus grows rapidly during the last ten weeks of pregnancy, lack of calories at this point could prove harmful to the fetus.

Many pregnant teenagers gain too much weight because they are physically inactive. Once they become pregnant, they frequently stop participating in their usual activities. As their pregnancies progress, they become lethargic and spend their time eating, watching television, or sleeping.

Exercise is important because it aids circulation, improves appetite, tones the muscles, and decreases stress. Walking is good exercise for pregnant teenagers, and they should be encouraged to walk.

Psychosocial Factors of Nutritional Habits

Accepting physical changes often is difficult for pregnant adolescents. During their teenage years, girls are learning to deal with the concept of body image. Consequently, many teenagers view pregnancy as getting fat rather than accepting the physical changes as appropriate. Often, girls have a difficult time feeling positive about themselves. Their partners and friends may reinforce these negative feelings if they frequently tease them about their weight and shape.

Nutritional habits, including knowledge about nutrition and food choices, may be significantly influenced by pregnant girls' partners, friends, and families. Sometimes these people have a beneficial effect on the girls' diets, but often their influence results in poor-quality diets. Misinformation regarding general nutrition and prenatal nutrition is often given to adolescents. In some instances family members are unwilling to provide the appropriate foods. Frequently, pregnant adolescents report that they are so busy spending time with friends that they fail to eat. The most effective method to remedy these situations is to include partners and family members when educating adolescents about appropriate nutrition during pregnancy.

Economic stability is a common problem with pregnant adolescents and can severely hamper food availability. Without the appropriate finances and resultant food supply, pregnant girls are unable to adhere to the recommended nutritional guidelines. Therefore, one of the most important considerations when working with pregnant girls is to ensure their access to an adequate food supply. These adolescents should be referred to the Women, Infants, and Children Supplemental Feeding Program (WIC) and given information about obtaining food stamps and gaining access to emergency food closets.

Stress is another psychosocial factor that can affect the nutritional status of teenagers. Stress often causes nausea and affects the utilization of some nutrients. In addition, teenagers often will increase their cigarette smoking as stress increases, again affecting their nutritional status as well as the general health of their unborn babies. As a direct result of stress, some pregnant teenagers consume excessive amounts of food, while others severely restrict their food intakes. This results in excessive weight gain for some teenagers and weight loss for others. Teenagers should be helped to deal with these stresses during their pregnancies to ensure their health as well as the health of their babies.

In summary, the nutritional status of pregnant adolescents involves a complex set of variables. Teenagers should be educated not only about their increased nutrient requirements but also about ways to evaluate their life-styles and to understand and deal with the psychosocial factors of pregnancy. This comprehensive approach to dealing with pregnancy can help them to give birth to healthy babies.

NUTRITIONAL NEEDS OF LACTATING ADOLESCENTS

The nutritional requirements of pregnant and lactating adolescents are similar. Breast feeding increases the requirements for nearly all the nutrients generally required by teenagers. Eating a well-balanced diet can help teenagers meet most of these needs, although continued use of a prenatal vitamin is usually recommended.

The most significant increases in nutritional needs are those for calories and protein. According to the Recommended Dietary Allowances (RDA), lactating mothers need an extra 500 calories per day during the first three months of breast feeding. If mothers continue to breast feed past this initial three-month period, they need additional calories. Lactating adolescents need an additional 20 grams of protein per day. Table 2 contains information that lactating adolescents can use to achieve their recommended dietary intakes.

Fluids are important to pregnant adolescents while they are breast feeding. Adolescents should drink according to thirst but should keep in mind that 10 to 12 cups of fluid are recommended each day. These fluids should consist of water, juice, and milk.

Smoking, drinking, or taking drugs can be particularly harmful to infants who are nursing and may impair milk production. The chemicals from the tobacco, alcohol, and drugs are passed on to babies through the breast milk. Nursing mothers should, therefore, avoid or cut down on these products and should ensure that any medication they are taking has been approved by a physician. Mothers should never use street drugs or narcotics while breast feeding.

Many adolescent mothers are concerned about losing weight. They should be encouraged to lose weight gradually by following the diet outlined in Table 2. Mothers who severly restrict their intake of calories to lose weight, particularly during the first few weeks after giving birth, may be exhausted and unable to support lactation. By eating properly and exercising moderately, most adolescents will return to their normal weights by nine months postpartum; and many return to their initial weight much earlier.

Many teenagers believe that breast feeding is an effective means of preventing conception. Lactating teenagers should understand that breast feeding is <u>not</u> an effective means of birth control.

Table 2. Daily Food Guide for Lactating Adolescents

FOOD GROUP	QUANTITY FOR ONE SERVING	SERVINGS NEEDED	
		NOT BREAST-FEEDING	BREAST-FEEDING
milk and milk products	1 cup milk 1 1/2 oz. cheese 1 1/3 cup cottage cheese 1 1/2 cup ice cream 1 cup yogurt	2	5*
protein foods	2 oz. cooked meat, fish, poultry 2 eggs 1 cup cooked beans 4 Tbsp. peanut butter 1/4 cup tuna 1/2 cup nuts or seeds	2+	4
breads and cereals	1 slice bread 1 tortilla 1/2 cup hot cereal, cooked 3/4 cup cold cereal 1/2 cup rice, noodles, or pasta	4	4**
dark green vegetables	1 cup raw or 3/4 cup cooked spinach, broccoli, brussels sprouts, greens, romaine or red lettuce	1	1
vitamin C fruits and vegetables	3/4 cup juice 1 medium orange 1/2 grapefruit 3/4 cup broccoli, bell pepper, cabbage, chilis	1	1+
other fruits and vegetables	1 medium apple, peach, banana, potato 1/2 cup raw or cooked squash, lettuce, corn, cauliflower, peas, green beans, carrots	2	2

*For lactating teenagers under 17 years of age, increase to six servings.
**For lactating teenagers under 17 years of age, increase to five servings.
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ERIC

THE ROLES OF EDUCATIONAL INSTITUTIONS

Educational institutions have a primary role in helping pregnant and lactating adolescents ensure their own health as well as the health of their babies. This section contains information about the role of the schools and the role of the California State Department of Education in educating pregnant and lactating adolescents.

The Role of the Schools

Schools have a major role in helping adolescents meet their nutritional needs during pregnancy and lactation. Schools can educate adolescents about fetal development, health and nutrition, and infant care. Schools can help pregnant adolescents eat a better diet, drink and smoke less, and stop using drugs by implementing programs in which the adolescents' roles in producing healthy babies are emphasized. Since pregnant teenagers see their health care providers for only a limited time each month during their pregnancies, schools have the primary responsibility for educating pregnant adolescents.

For many adolescents the only time they eat a balanced meal is at school. Thus, mealtime at school is a practical means of educating teenagers about good nutrition. Schools should encourage students to participate in preparing meals when possible. Learning about food preparation and basic nutrition can help pregnant adolescents improve their food choices.

Schools can help adolescents make wise nutritional choices by encouraging them to obtain prenatal health care. Adolescents who receive regular medical care during pregnancy help to ensure they remain healthy. During regular medical visits, their weight gain and blood pressure are monitored; their unborn babies' growth is checked; and they are tested for anemia. Weight gain, blood pressure, fetal growth, and anemia are a direct result of students' dietary intakes. In essence, the schools and the health care providers should be working together to ensure healthy pregnancies and healthy infants.

Many individuals who work in schools have important roles in educating pregnant adolescents about nutrition and encouraging them to make wise nutritional choices. These individuals include board members, principals, and administrators; family life, home economics, and health teachers; physical education teachers; school nurses; counselors; and the staff members of the child nutrition program. Information about their roles in educating pregnant adolescents follows.

Board Members, Principals, and Administrators

One of the most important roles of member of this group is to encourage their staff members to become involved in the variety of programs that can help pregnant adolescents improve their nutritional habits. Staff members can emphasize the importance of good health, which involves eating well-balanced meals, securing appropriate health care, becoming educated regarding maternal

and child health issues, and participating in programs such as the Women, Infants, and Children Supplemental Feeding Program (WIC). Board members, principals, or administrators also can support the practice of breast feeding by establishing appropriate policies regarding nursing during school hours.

Family Life, Home Economics, and Health Teachers

Family life, home economics, and health teachers have the ability and the opportunity to incorporate nutrition principles in all areas of their curriculums. General nutrition, prenatal nutrition, and infant feeding practices are topics that should be taught to pregnant students. These teachers are able to explain the necessity of good nutrition and infant feeding practices and motivate students to follow recommendations. The goal of a healthy baby should be shared by both students and teachers.

Classes should be developed that include information about particular topics, such as snacking or fast foods, and specific recommendations to help pregnant students make wise choices about snacking and fast foods. In addition, information about pertinent areas of prenatal nutrition, such as excessive or poor weight gain, anemia, or calcium needs, should be included. Nonpregnant teenagers, too, can use information about the nutritional content of fast foods and snacks.

Other areas of concern for many pregnant adolescents include lack of money and a limited food supply. To help students deal with these problems, teachers should include lessons on budgeting. One lesson on budgeting should involve how to shop wisely and make low-cost, healthy food selections. Many resources for teachers to use when teaching about budgets are available from the cooperative extension offices of the University of California.

Physical Education Teachers

Physical education teachers can assist pregnant or lactating adolescents in improving their nutritional and physical conditions. Exercise is important to pregnant adolescents because their blood volume increases 50 percent during pregnancy, and exercising ensures proper circulation. Exercise also helps teenagers to manage their weight during and after pregnancy. Physically fit adolescents also are better able to deal with the demands of labor and delivery.

School Nurses

School nurses are important sources of support to pregnant adolescents and can encourage them to seek health care as soon as their pregnancies are confirmed. Once pregnant adolescents enter the health care system, their pregnancies can be monitored and their nutritional status improved. School nurses can provide pregnant teenagers with accurate information and encourage them to make the right choices to ensure that their babies are healthy. In addition, school nurses can help teenagers to understand that during their pregnancies, fetal development is linked directly to their diets and nutritional habits.

Nurses can provide information to help teenagers understand such nutritional issues as weight gain, anemia, food choices, substance abuse, breast feeding, and infant feeding skills. Nurses can also refer pregnant teenagers to appropriate agencies and personnel.

Counselors

Counselors play a particularly important role in ensuring that adolescents meet their nutritional needs during pregnancy. Counselors can encourage these young women to take an active role in their own care by emphasizing to them that the choices they make--including whether to smoke, drink, use drugs, and stick to a healthy diet--and responsibilities they take on result in healthier babies.

Pregnant adolescents face many sources of stress in their lives that directly affect their nutrition; for example, lack of food; lack of housing; and loss of relationships with their families, fathers of the babies, or friends. These sources of stress can directly affect pregnant adolescents' food supplies, lessen their food consumption due to loss of appetite, increase their intake of food because of added stress, or increase undesirable habits such as smoking.

Counselors can provide support and referrals and help pregnant teenagers learn skills in problem solving. By helping pregnant teenagers to alleviate their problems, counselors enable them to improve their nutritional status.

Child Nutrition Program Staff Members

Staff members of the child nutrition program have a direct role in helping pregnant adolescents to meet their nutritional needs. By providing nourishing meals and snacks, staff members directly help teenagers to improve their nutritional status. Given the time and training, the staff members can inform pregnant students about the relationship between various foods and specific areas of fetal development. For some students the meals they receive at school are the major source of food for the day. The child nutrition program staff members have an important responsibility to provide high-quality, nutritious meals to these students.

The lines of communication must be open between the students and the child nutrition staff members. If students have requests for inclusion or elimination of certain foods at meal times, staff members should review these requests. Students should be assigned projects that are designed to teach them how to plan meals on a budget. These menus could be adapted for school use once they have been refined to meet federal and state requirements.

In summary, a variety of individuals provide support, information, and encouragement to ensure that the nutritional needs of pregnant adolescents are met. The school's role is critical in fulfilling many of those needs as well as providing pregnant students with the tools to make appropriate choices, thus improving their nutritional status.

The Role of the State Department of Education

The State Department of Education administers two programs that schools can use to educate pregnant and lactating adolescents about nutrition--the Comprehensive Health Program (CHP) and the Meal Supplements for Pregnant or Lactating Students Program. The goals of the former are to create and stimulate interest in health education, raise awareness of the need for health and fitness throughout the state, and motivate school districts to implement strong health education programs. The implementation of these goals includes many components: classroom instruction; health services; physical education; nutrition services; health promotion activities for staff members; and involvement of the community, parents, and the private sector. Schools can modify and include many aspects of this program in local programs designed especially for pregnant and lactating students.

The Child Nutrition and Food Distribution Division administers the Meal Supplements for Pregnant or Lactating Students Program. This program is available to schools that participate in federal lunch and/or breakfast programs and that are reimbursed for meal supplements served to students who are certified by a physician to be pregnant or lactating. (Schools that wish to participate in this program may apply at any time as long as funds are available. For more information about program requirements, contact the State Department of Education, School Nutrition Programs Unit, P.O. Box 944272, Sacramento, CA 94244-2720; telephone 916-445-0850 or, toll free, 800-952-5609.) The objective of this program is to enable pregnant and lactating students to increase their consumption of grain products, protein foods, and calcium-rich foods. In addition to meeting the minimum federal lunch and/or breakfast meal pattern requirements, schools that participate in this program must ensure that pregnant or lactating students are served the following:

Meat or meat alternate	2 oz.
Bread or bread alternate	0-2 servings*
Calcium supplement	1 oz. cheese or 1/2 pt. milk

These quantities must be added to the total amount of food required by the federal programs. Quantities may be added to meals or served separately. For example, the additional food can be served at or dispersed throughout any or all of the following:

Breakfast

Morning/Afternoon Supplement--(A feeding, other than breakfast or lunch, in which <u>all</u> of these additional components are provided.)

Lunch

Morning/Afternoon Snack--(A feeding, other than breakfast or lunch, in which a fraction of these additional components is provided. The remainder of the components may be offered as a separate snack or with breakfast or lunch.)

* The total amount of bread/bread alternate served per day must equal three servings.

To participate in the meal supplements program, schools that participate in a federal lunch program must serve additional quantities of food to pregnant or lactating adolescents. The additional quantities of food are listed in Figure 6. Schools that participate in federal breakfast and lunch programs also must serve additional quantities of food. The additional quantities of food are listed in Figure 7. The remainder of this section contains information for schools to use when planning supplemental menus that include the additional quantities of food listed in figures 6 and 7.

When planning supplemental menus for pregnant and lactating students, schools should keep in mind the nutritional needs and dietary patterns of these students and offer a variety of foods. Ideally, supplemental menus should be coordinated with the breakfast and lunch menus to minimize duplication of foods. The following menus may be used to meet the supplemental meal requirements:

Deviled egg and crackers
Low fat or skim milk

Toasted English muffin with cheese
Low fat or skim milk

Puff pancake with fresh fruit
Scrambled egg
Low fat or skim milk

Quesadilla with cheese and/or beans
Low fat or skim milk

Peanut butter and graham crackers
Low fat or skim milk

French toast and fresh fruit
Low fat or skim milk

Tossed salad with cheese
French roll or bread sticks
Low fat or skim milk

Apple wedges or celery sticks with peanut butter
Crackers
Low fat or skim milk

Trail mix (nuts, raisins, sunflower seeds, and cereal)
Cheese cubes
Low fat or skim milk

Hard boiled eggs
Whole wheat roll
Milk

In addition to the menus previously listed, schools may serve the following:

Tuna sandwich with milk

Turkey and cheese sandwich with juice

Peanut butter and banana sandwich with milk

Chicken sandwich with milk

Ham and cheese sandwich with juice

Egg salad sandwich with milk

Roast beef sandwich with milk

Grilled cheese sandwich with milk

Meat and cheese sandwich with juice

Bean and cheese burrito with milk

Food	Lunch requirements	Additional requirements	To equal total of
Meat/meat alternate	2 oz.	2 oz.	4 oz.
Bread/bread alternate	8/week	1-2 servings	3 servings per day*
Calcium supplement	--	1/2 pt. milk or 1 oz. cheese	1 serving**
Milk	1/2 pt.	See calcium supplement.	1/2 pt.
Vegetable and/or fruit	3/4 cup	No additional requirement	3/4 cup fruit

* One cup of fruit may replace one serving of the bread/bread alternate once a week.

** One cup of unsweetened yogurt, made with pasteurized milk, may replace the calcium supplement not more than two times per week.

Fig. 6. List of additional quantities of food that must be served by schools participating in a federal lunch program

Food	Breakfast requirements	Lunch requirements	Additional requirements	To equal total of
Meat or meat alternate	--	2 oz.	2 oz.	4 oz.
Bread/bread alternate	1	8/week	0-1 serving	3 servings per day*
Calcium supplement	--	--	1/2 pt. milk or 1 oz. cheese	1 serving**
Milk	1/2 pt.	1/2 pt.	See calcium supplement.	1 pt.
Vegetable and/or fruit	1/2 cup	3/4 cup	No additional requirement	1 1/4 cup

* One cup of fruit may replace one serving of the bread/bread alternate once a week.

** One cup of unsweetened yogurt, made with pasteurized milk, may replace the calcium supplement not more than two times per week.

Fig. 7. List of additional quantities of food that must be served by schools participating in federal breakfast and lunch programs

When planning menus, however, schools should keep in mind the following:

- Cream cheese does not qualify as a meat alternate and is mostly fat.
- Nuts and seeds now can constitute half of the meat alternate component.
- Breakfast pastries, doughnuts, and cocoa are high in sugar and fat and are expensive.

Schools should keep records of the foods they serve in this program. To be consistent, schools could maintain records similar to those maintained for the breakfast and lunch programs. Figure 8 is a sample of a completed menu production record. Figure 9 consists of a blank menu production record that can be duplicated and used by schools.

B-3 Weekly Menu Production Record

CALIFORNIA STATE DEPARTMENT OF EDUCATION PREGNANT/LACTATING STUDENTS
CHILD NUTRITION AND FOOD DISTRIBUTION DIVISION MEAL SUPPLEMENT Site:(R) XYZ SCHOOL

MEAL COUNT								
AGE GROUP	ESTIMATED	(R) ACTUAL	MENU(R) AND SERVING SIZE*	FOOD ITEM AND FORM USED(R)	AMOUNT PREPARED** IN PURCHASE UNITS(R)	*** NUMBER OF PORTIONS PREPARED	A LA CARTE/ ADULT SERVINGS(R)	LEFT-OVERS(R)
DATE:(R)	9/1/86		HOLIDAY					
STUDENT GR.								
STUDENT GR.								
ADULT GR.								
TOTAL								
DATE:(R)	9/2/86		Quesadilla w/	Flour tortilla (1.5 oz)*	1 lb.	10.6		0
STUDENT GR. 9-12	10	10	1 oz. cheese +	Cheddar cheese	.75 lb.	12		0
STUDENT GR.	}	}	1/4 c. beans	Canned pinto beans (No. 10 can)	.25 can	10.8		0
ADULT GR.								
TOTAL	10	10	8 oz. LF milk	LF milk (1/2 pt)	10	10		0
DATE:(R)	9/3/86		Tuna Sandwich	Canned tuna, chunk water pack (66.5 oz can)	.5 can	12.8		4 oz.
STUDENT GR. 9-12	10	8	2 oz. tuna					
STUDENT GR.	}	}	2 sli. w/w bread (lettuce/tomato)	Whole Wheat Bread	1.25 lb.	10		4 sli.
ADULT GR.								
TOTAL	10	8	8 oz. LF milk	LF milk (1/2 pt)	10	10		0
DATE:(R)	9/4/86		Ham + Cheese s/w					
STUDENT GR. 9-12	9	9	1 oz. ham	Canned Ham	1 lb.	10.2		0
STUDENT GR.	}	}	1 oz. cheese	Cheddar Cheese	.6 lb.	9.6		0
ADULT GR.			2 sli. w/w bread (lettuce, tomato)	Whole Wheat Bread	1.2 lb.	9		0
TOTAL	9	9	8 oz. LF milk	LF milk	9	9		0
DATE:(R)	9/5/86		French Toast					
STUDENT GR. 9-12	10	8	2 sli. w/w bread	Whole Wheat Bread	1.25 lb.	10		4 sli.
STUDENT GR.	}	}	1 egg	Large eggs	10 (.84 doz)	10		2
ADULT GR.			8 oz. LF milk	LF milk (1/2 pt.)	10	10		2
TOTAL	10	8	(Fruit topping)					

R = Required information.
*Planned serving size refers to the intended contribution to meal requirements for each age group to be served, required for offer-vs.-serve, menu choices, or portion adjusting.
**Based on *USDA Food Buying Guide* yields.
***Required for offer-vs.-serve lunches, menu choices, portion adjusting, or use of leftovers.

* 9/2/86 2 servings Bread served at lunch

Fig. 8. Example of a completed weekly menu production record

B-3 Weekly Menu Production Record

CALIFORNIA STATE DEPARTMENT OF EDUCATION
CHILD NUTRITION AND FOOD DISTRIBUTION DIVISION

Site:(R)

MEAL COUNT			MENU(R) AND SERVING SIZE*	FOOD ITEM AND FORM USED(R)	AMOUNT PREPARED** IN PURCHASE UNITS(R)	*** NUMBER OF PORTIONS PREPARED	A LA CARTE/ ADULT SERV-INGS(R)	LEFT-OVERS(R)
AGE GROUP	ESTI-MATED	(R) ACTUAL						
DATE:(R)								
STUDENT GR.								
STUDENT GR.								
ADULT GR.								
TOTAL								
DATE:(R)								
STUDENT GR.								
STUDENT GR.								
ADULT GR.								
TOTAL								
DATE:(R)								
STUDENT GR.								
STUDENT GR.								
ADULT GR.								
TOTAL								
DATE:(R)								
STUDENT GR.								
STUDENT GR.								
ADULT GR.								
TOTAL								
DATE:(R)								
STUDENT GR.								
STUDENT GR.								
ADULT GR.								
TOTAL								

R = Required information.
*Planned serving size refers to the intended contribution to meal requirements for each age group to be served, required for offer-vs.-serve, menu choices, or portion adjusting.
**Based on *USDA Food Buying Guide* yields.
***Required for offer-vs.-serve lunches, menu choices, portion adjusting, or use of leftovers.

Fig. 9. Weekly menu production record suitable for reproduction

RECOMMENDED READINGS AND AUDIOVISUAL AIDS

Information on ordering materials is included in the section on Resources/Agencies at the end of this section.

Books

Consumer Orientation

*Hess, Mary A., and Anne E. Hunt. Pickles and Ice Cream: The Complete Guide to Nutrition During Pregnancy. New York: McGraw-Hill Book Co., 1982.

*Satter, Ellyn. Child of Mine: Feeding with Love and Good Sense. Palo Alto, Calif.: Bull Publishing Co., 1983. Includes a chapter on pregnancy as well as one on lactation, formula feeding, and infant and toddler nutrition.

Staff/Professional Resources

Healthy Mothers Coalition: Directory of Educational Materials. Washington, D.C.: Public Health Services, U.S. Department of Health and Human Services, n.d.

Lawrence, Ruth A. Breast Feeding: A Guide for the Medical Profession. St. Louis: C. V. Mosby Co., 1980. Includes technical information.

Mahan, L. Kathleen, and Jane M. Rees. Nutrition in Adolescence. St. Louis: C. V. Mosby Co., 1984. See pages 221--256.

Olsen, Laurie. Food Fight: A Report on Teenagers' Eating Habits and Nutritional Status. Oakland, Calif.: Citizens Policy Center, 1984.

Promoting Breast Feeding: A Guide for Health Professionals Working in WIC and CSF Programs (FNS-247). Washington, D.C.: Food and Nutrition Service, U.S. Department of Agriculture, n.d.

Worthington-Roberts, Bonnie S.; Joyce Vermeersch; and S. R. Williams. Nutrition in Pregnancy and Lactation (Third edition). St. Louis: C. V. Mosby Co., 1985.

Pamphlets

General Prenatal Information

Be Good to Your Baby Before It's Born. White Plains, N.Y.: March of Dimes, 1985.

Food for the Teenager During and After Pregnancy (HRSA 82-5106). Washington, D.C.: Public Health Services, U.S. Department of Health and Human Services, 1982.

*Asterisked items are available through the Nutrition Resource Center. See the section on Resources/Agencies at the end of this list for the address.

Help Your Baby to a Healthy Start. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1984.

Natural Remedies for Pregnancy Discomforts. Berkeley, Calif.: Maternal and Child Health Branch, California State Department of Health Services, 1983.

Nutrition for Pregnancy and Breast Feeding. Berkeley, Calif.: Maternal and Child Health Branch, California State Department of Health Services, 1978. Published in a series of pamphlets, which include Eating Right for Your Baby, Using Vitamin/Mineral Pills and Salt, and Relief of Common Problems: Nausea, Constipation, Heartburn.

Recipe for Healthy Babies. White Plains, N.Y.: March of Dimes, 1985.

Teenaged and Pregnant: A Time to Stay Healthy. Columbus, Ohio: Ross Laboratories, 1984.

Substances to Avoid

Babies Don't Thrive in Smoke-Filled Wombs. White Plains, N.Y.: March of Dimes, 1985.

Because You Love Your Baby. Washington, D.C.: American Lung Association, 1982. Includes packet designed to encourage pregnant women to stop smoking.

Pregnant? That's Two Good Reasons to Quit Smoking (PHS 83-50198). Washington, D.C.: Public Health Services, Department of Health and Human Services, 1983.

Will My Drinking Hurt My Baby? White Plains, N.Y.: March of Dimes, 1984.

You Have a Choice, But Your Baby Doesn't! Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1985. Includes information on alcohol, smoking, drugs, and medications.

Snacks/Eating Out

Eat Well--Grab a Snack. San Jose, Calif.: Santa Clara County Health Department, 1984. Oriented to children but is applicable to adults and teens.

Fast Tips for Fast Foods. Oakland, Calif.: Safeway Nutrition Awareness Program, 1985.

Snacks. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1981.

Miscellaneous Nutrients

Fola-What? (Folacin). Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1981.

How Much Calcium Do You Need a Day? Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, n.d.

Iron Foods for Strong Blood. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1984.

Milk and Milk Products. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1984.

Protein Foods. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1984.

Postpartum Care

Be a Healthy Mom . . . Take Care of Yourself. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1985.

Breastfeeding

Breastfeeding. Sacramento; Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1984.

Breast Feeding: Those First Weeks at Home. Glenside, Pa.: Health Education Associates, Inc., 1984.

Morris, Pat. Getting Back in Shape While Breastfeeding. Long Beach, Calif.: Prenatal Outreach Education Program, Memorial Hospital Medical Center of Long Beach, 1981.

Nursing Is Easy--When You Know How. Glenside, Pa.: Health Education Associates, Inc., 1984.

Yes, I Want to Breastfeed. Sacramento: Women, Infants, and Children Supplemental Feeding Program, California State Department of Health Services, 1985.

Weaning

Weaning Your Baby: A Helpful Guidebook About Weaning for the Breast-feeding Mother. Evansville, Ind.: Mead-Johnson, n.d.

Posters

"Guide to Good Eating." Rosemont, Ill.: National Dairy Council, n.d. Includes information about the four food groups.

"How a Baby Grows." White Plains, N.Y.: March of Dimes, n.d. Includes illustrations of fetal development during the nine months of pregnancy.

"How to Dress a Baby from the Inside Out." Freemont, Mich.: Gerber, n.d.

"No Junk Food." Washington, D.C.: Center for Science in the Public Interest, n.d. Includes illustrations of junk food with slashes through the items.

Set of three posters. White Plains, N.Y.: March of Dimes, n.d. Set includes the following three posters designed to warn pregnant women about the dangers of drinking, smoking, and drugs: "Think Twice! Pregnant Woman Cannot Drink Alone," "Two on a Match Is Bad Luck for You and Your Unborn Baby," and "Double Take! When You Take a Drug, Your Unborn Baby Does Too."

"Smoking Stinks." Oakland, Calif.: American Lung Association, n.d. Poster featuring a photograph of Brooke Shields with cigarettes in her ears.

"Take Care of Your Baby Right from the Start." Washington, D.C.: Healthy Mothers, Healthy Babies, U.S. Department of Health Services, n.d.

Workbooks/Curricula

At This Very Special Time in Your Life. Sacramento: Dairy Council of California, 1985. (Workbook)

*PEP: Preparenthood Education Program. White Plains, N.Y.: March of Dimes, n.d. (Curriculum guide)

Personalized Nutrition Plan. Sacramento: Dairy Council of California, 1983. (Workbook)

*What Every Teenager Should Know About Nutrition. San Jose, Calif.: Santa Clara Child Health and Disability Prevention Program, n.d. (Curriculum guide and learning activities)

Working with the Pregnant Teenager: A Guide for Nutrition Educators (Program Aid 1303). Washington, D.C.: U.S. Department of Agriculture. This nutrition guide includes educational strategies and lesson plans.

Audiovisual Aids

Motion Pictures/Videocassettes

*Great Expectations. Society for Nutrition Education, 1980. Focuses on pregnancy and lactation.

It's Up to Me. White Plains, N.Y.: March of Dimes, 1984. Consists of a 16-mm film designed to inform pregnant women on their personal responsibilities.

Slides/Filmstrips and Audiotapes

Fast Food: A Nutrition Survival Guide. Kildeer, Ill.: The Learning Seed Co., 1981.

*Inside My Mom. White Plains, N.Y.: March of Dimes, n.d. Includes information about nutrition during pregnancy

*Asterisked items are available through the Nutrition Resource Center. See the section on Resources/Agencies at the end of this list for the address.

Outside My Mom. White Plains, N.Y.: March of Dimes, n.d. Includes information about breast feeding.

*Snack Facts. Burbank, Calif.: Encore Visual Education, 1976.

Starting Out Healthy: Maternal and Infant Nutrition. New York: Butterick Publications, 1980.

Resources/Agencies

American Lung Association of California, 424 Pendleton Way, Oakland, CA 94621; (415) 638-5864. Check phone book for number of local chapter. Provides information on the effects of smoking during pregnancy. Offers smoking cessation clinics.

Butterick Publications, 708 Third Ave., New York, NY 10017.

California State Department of Health Services, 1103 N. B St., Suite E, Sacramento, CA 95814; (916) 322-5277. Sponsors the Women, Infant, and Children Supplemental Feeding Program (WIC). The Maternal and Child Health Branch is located at 2151 Berkeley Way, Annex 4, Room 400, Berkeley, CA 94704.

California Dietetic Association, 7740 Manchester Ave., Suite 102, Playa Del Rey, CA 90293; (213) 822-0177. Resource panel available in various nutrition specialty areas, including perinatal, nutrition education, and school lunch.

California Teratogen Registry, (800) 532-3749, Monday through Friday from 9 a.m. to 5 p.m. Provides information to health professionals and consumers about drugs, chemicals, and physical agents that may be harmful to an unborn child.

Center for Science in the Public Interest, 1501 16th St. NW, Washington, DC 20036.

Daily Council of California, 601 N. Market Blvd., Sacramento, CA 95834; (916) 920-7691.

Health Education Associates, Inc., 211 South Easton Rd., Glenside, PA 19038.

Healthy Mothers, Healthy Babies, Department of Public Affairs, Public Health Service, U.S. Department of Health and Human Services, 200 Independence Ave. SW, Room 740-G, Washington, DC 20201. A coalition of voluntary, professional, and governmental agencies designed to improve the health of mothers and their babies.

The Learning Seed Co., 21250 Andover, Kildeer, IL 60047.

Le Leche League International, 9616 Minneapolis Ave., Franklin Park, IL 60131. Check phone book for local listing. Provides breast feeding information, education, and support to consumers and professionals.

*Asterisked items are available through the Nutrition Resource Center. See the section on Resources/Agencies at the end of this list for the address.

March of Dimes Birth Defects Foundation, 1275 Mamaroneck Ave., White Plains, NY 10605; (914) 428-7100. Regional office: 675 N. First St., Suite 610, San Jose, CA 95112. Check phone book for number of local chapter. Provides educational programs, publications, and audiovisual materials to assist professionals in providing prenatal health care.

Nutrition and Food Service Education Resource Center, Vallejo City Unified School District, 321 Wallace Ave., Vallejo, CA 94590; (707) 557-1592. Priscilla Naworski, Director. Loans materials to all educators, nutritionists, and child care and food service personnel.

Nursing Mothers Council, P.O. Box 50063, Palo Alto, CA 94303. Check with local obstetrician or pediatrician for local phone number. Provides breast feeding information and education and support to consumers and professionals.

Safeway Nutrition Awareness Program, 430 Jackson St., Oakland, CA 94660.

Santa Clara County Health Department, 2220 Moorpark Ave., San Jose, CA 95128.

School Nutrition Programs Unit, California State Department of Education, P.O. Box 944272, Sacramento, CA 94244-2720; (916) 445-0850 or (800) 952-5609. Provides technical assistance regarding meal supplements for pregnant and lactating students.

University of California Cooperative Extension, Public Service Offices, 2120 University Ave., Floor 6, University of California, Berkeley, CA 94720; (415) 644-4345; and 4415 Chemistry Annex, University of California, Davis, CA 95616; (916) 752-3690. Sources of nutrition information based on current research.

U.S. Department of Health and Human Services, Public Health Services, 5600 Fishers Lane, Rm. 1-10, Park Building, Rockville, MD 20857.

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