

**NUTRITION NEEDS
FOR
PRECONCEPTION
AND PREGNANCY
CARE**

The development of Dietary Reference Intakes (DRIs) in 2002 replaces the Recommended Dietary Allowances (RDAs) published in 1989. See updates below for Table 8 in the Nutrition Section of the 2002 edition of the Guidelines for Care.

Table 8. DIETARY GUIDELINES FOR PRECONCEPTION AND PREGNANCY CARE, revised 2006

Kilocalories	<p>Preconception: Provide adequate kilocalories for attaining a healthy weight before pregnancy. One month prior to conception provide adequate kilocalories for weight maintenance. The equation for calculating the estimated energy requirement (EER) for normal weight women 19 years and older is depicted in Table 5.</p> <p>Pregnancy: Prepregnant BMI, maternal age, rate of weight gain, physiological growth spurt and appetite must be considered in tailoring the caloric recommendation to the individual.^{1,2} Following the recommended number of servings from each food group for pregnancy³ would provide a minimum of 1800 Kcal/day. For normal and overweight women living in developed countries additional energy needs in the second and third trimesters may be less than 300 kcal/day. In obese women (BMI > 29) caloric recommendations need to be individualized. In very young adolescents (< 14 yrs old) an additional 500 Kcal/day may be needed.²</p>
Protein	<p>Preconception: 0.8g/kg/day</p> <p>Pregnancy: Requirements don't increase until the second half of pregnancy to 1.1 g/kg/day (or an additional 25 g/day). The general new RDA for protein is 71 grams per day.⁴</p>
Carbohydrate	<p>Preconception: The contributions of CHO to energy intake should be individualized based on nutrition assessment, metabolic profiles, and treatment goals.</p> <p>Pregnancy: A minimum of 175g CHO/day.⁴ For GDM 40-45% of total calories from CHO.⁵ In obese women (BMI>29) a restriction of 35-40% of calories from CHO is recommended.¹</p>
Fat	<p>Preconception and Pregnancy: Less than 10% of energy intake should be derived from saturated fats. Polyunsaturated fat intake should be ~ 10% of energy intake. The rest of fat intake should come from monounsaturated fat.</p>
Nonnutritive Sweeteners	<p>Preconception and Pregnancy: Consumption of acesulfame potassium, aspartame, saccharin, sucralose, and neotame within acceptable daily intakes is safe during pregnancy. Stevia is sold as a "dietary supplement" but has not been approved as a nonnutritive sweetener. No Acceptable Daily Intake (ADI) has been set for Stevia due to insufficient data.⁶</p>
Fiber	<p>Preconception and Pregnancy: Adequate Intake (AI) of total fiber for women under 50 years is 25 g/day.⁴ For pregnancy the AI is 28g/day and for lactation 29g/day. A high quantity of fiber in the diet (25g/1000Kcal) slows gastric emptying time and results in a significant reduction in postprandial serum glucose and insulin levels.⁵ Fiber is also effective for relief of constipation.</p>
Sodium	<p>Preconception and Pregnancy: AI for women under 50 years is 1.5 g/day. Sodium is not routinely restricted in pregnancy and restriction has not been proven effective in preventing or delaying preeclampsia.¹ Upper limit for sodium is 2.3 g/day.⁷</p>
Folic Acid	<p>Preconception: 400 mcg/day of synthetic folic acid from fortified foods, supplements or both, in addition to consuming folate from food in a varied diet.</p> <p>Pregnancy: 600 mcg/day of dietary folate equivalents. 14 - 18 year olds should not exceed 800 mcg/day and ages ≥ 19 years should not exceed the tolerable upper limit of 1,000 mcg/day of folate from foods, fortified foods, and supplements.⁸</p>

Table 8. DIETARY GUIDELINES FOR PRECONCEPTION AND PREGNANCY CARE, revised 2006, Continued

Iron, zinc, copper	Preconception: Daily Recommended Intake (DRI) for iron is 18 mg/day. Pregnancy: DRI = 27 mg/day. A low-dose iron supplement (30mg/day) is recommended beginning at the first prenatal visit. When a low Hgb or Hct is confirmed by a repeat test, an oral dose of 60-120mg of iron/day should be prescribed. ⁹ For women taking supplements >30 mg/day of iron, 15 mg of zinc and 2 mg of copper as supplements are recommended. ¹⁰ These amounts are found in many prenatal vitamin-mineral supplements.
Calcium	Preconception and Pregnancy: Ages 14-18 years - 1300 mg/day; ages 19-50 years - 1000mg/day. ¹¹ For women who do not consume milk products or calcium fortified foods, a calcium and vitamin D supplement may be needed.
Multivitamin and Mineral Supplements	Preconception: (see folic acid above) Pregnancy: Multivitamin and mineral supplements are recommended for women with multiple gestations, iron deficiency anemia, poor quality diets, and vegan. Supplements are also recommended for women who smoke or use or abuse alcohol or drugs. Vegans need 400 IU Vitamin D and 2.0 mcg Vitamin B12 supplementation. Avoid excessive supplementation of Vitamin A and D. ¹²
Herbal & Botanical Supplements	Pregnancy: Pregnant women should be advised to consider herbal treatments as suspect until their safety during pregnancy can be ascertained. Limit herbal teas. ¹³ To keep abreast of new information consult a governmental Web site: http://www.marchofdimes.com/printableArticles/681_1815.asp?printable=true
Alcohol	Preconception: Avoid if planning pregnancy. May reduce fertility. ¹⁴ Pregnancy: No alcohol. A safe level of alcohol intake has not been established for any stage during pregnancy.
Caffeine	Preconception: Some evidence suggests high levels (> 500mg/day) may delay conception. ¹⁵ Pregnancy: Some adverse effects on pregnancy outcomes have been linked to high caffeine intakes. Prudent advice would be to discourage >300 mg caffeine/day (i.e. limit to 2 cups of coffee/day). ¹

Acronyms:

ADI- Acceptable Daily Intake

AI- Adequate Intake

BMI- Body Mass Index

CHO - Carbohydrate

DRI- Daily Recommended Intake

GDM- Gestational Diabetes Mellitus

RDA- Recommended Daily Allowance

REFERENCES

1. Position of the American Dietetic Association: Nutrition and lifestyle for a healthy pregnancy outcome. *J Am Diet Assoc.*2002; 102: 1481
2. Gutierrez Y, King JC. Nutrition during teenage pregnancy. *Pediatric Ann.* 1993; 22: 99-108.
3. Nutrition During Pregnancy and the Postpartum Period: a Manual for Health Care Professionals. Maternal and Child Health Branch, WIC Supplemental Food Branch, California Department of Health Services, June 1990.
4. Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrates, Fiber, Fat, Protein and Amino Acids (Macronutrients). Washington, DC: National Academy Press; 2002.
5. American Dietetic Association. Medical Nutrition Therapy Evidence Based Guides for Practice. Nutrition Practice Guidelines for Gestational Diabetes Mellitus, 2001.
6. Position of the American Dietetic Association: Use of nutritive and nonnutritive sweeteners. *J Am Diet Assoc.* 1998; 98: 580-587.
7. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride and Sulfate. Washington, DC: National Academy Press; 2004.
8. Institute of Medicine. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. Washington, DC: National Academy Press; 1998.
9. Centers for Disease Control. Recommendations to prevent and control iron deficiency in the United States. *MMWR.* 1998; 47: 1-36.
10. Institute of Medicine. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Washington, DC: National Academy Press; 2001.
11. Institute of Medicine. Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride. Washington, DC: National Academy Press; 1997.
12. Institute of Medicine. Nutrition During Pregnancy Part I: Weight Gain, Part II: Nutrient Supplements. Washington, DC: National Academy Press; 1990.
13. American Academy of Pediatrics, Committee on Nutrition. Pediatric Nutrition Handbook. Elk Grove Village, IL: American Academy of Pediatrics; 1998.

14. Jensen TK, Hjollund NH, Henrikson TB, et al. Does moderate alcohol consumption affect fertility? Follow up study among couples planning first pregnancy. *BMJ*. 1998; 317: 505-510.
15. Bolúmar F, Olsen J, Rebagliato M, Bisanti L. Caffeine intake and delayed conception: a European multicenter study on infertility and subfecundity. European Study Group on Infertility Subfecundity. *Am J Epidemiol*. 1997; 145: 324-334.