



American Red Cross
Advisory Council on
First Aid, Aquatics,
Safety and Preparedness

ACFASP Answers

Nutritional Needs for Disaster Victims



Questions to be addressed:

What are the nutrition needs for disaster victims which can be used by the American Red Cross?

Answer:

Assumptions and Concerns

This answer is based on the challenge of providing nutrition for North American victims of disasters. This assumption constitutes an important clarification, because refugees or disaster victims in developing countries are likely to enter into the care of the Red Cross with substantial acute and/or chronic malnutrition as a fact of their lives well before the incident that caused them to come into contact with the Red Cross. As such, they are in need of medically-supervised nutrition recuperation programs that may have very different emphases than programs designed for disaster victims who were previously well-nourished.

Red Cross nutrition program personnel may have, at minimum, three different applications for the information we are providing:

- a. To use this guidance information in formulating Red Cross branded family preparedness kits.
- b. To provide written guidance to families and individuals who are constructing their own preparedness kits.
- c. To help design future Red Cross feeding programs for disaster victims. Such programs may include both "wet feeding" programs (providing prepared food in an eating facility) and dry feeding (providing "dry" foods for victims to prepare on their own).

General nutrition recommendations are calculated on the assumption of a 150 pound adult with a sedentary activity level. Larger people and people who have high activity levels require more for maintenance; smaller people less. Adolescents typically require more energy than an adult with the same weight and activity level. Newborns and toddlers have their own nutrition needs that are separate from adult nutrition formulas.

For feeding centers, Red Cross personnel will abide by Red Cross principles regarding fair and equitable distribution of food to the needy.

Nutrition Requirements

Using, as a primary source, a document jointly released by the US Department of Health and Human Services and the US Department of Agriculture,¹ the basic daily nutritional requirements for an average-size adult with a sedentary activity level are shown in Table 1. Please note that these figures are substantiated by the Sphere Project: Humanitarian Charter and Minimum Standards in Disaster Response.² Please note also that these recommendations may not adequately reflect the needs of “special needs” patients who may have digestive, metabolic or other problems necessitating variance from the normal dietary requirements. The ARC should recommend that such individuals should have their nutritional requirements supervised by a clinician with adequate nutritional training.

¹ US Department of Health and Human Services and US Department of Agriculture: Dietary Guidelines for Americans 2005. Accessed at: <http://www.health.gov/dietaryguidelines/dga2005/document/>

² Sphere Project, Nutrition Standards, available at: <http://www.sphereproject.org/content/view/63/84/lang,English/>

Table 1: Mean nutrient level recommendations for a sedentary adult male.

NUTRIENT	MEAN POPULATION REQUIREMENTS
Energy	2,100 kcals
Protein	10-12% total energy(52g-63g), but<15%
Fat	17% of total energy (40g)
Vitamin A	1.666IU (or 0.5mg retinol equivalents)
Thiamine (B1)	0.9mg (or 0.4mg per 1,000 kcal intake)
Riboflavin (B2)	1.4mg (or 0.6mg per 1,000 kcal intake)
Folic acid	160µg
Niacin (B3)	12.0mg (or 6.6mg per 1,000 kcal intake)
Vitamin B12	0.9µg
Vitamin C	28.0mg
Vitamin D	3.2-3.8µg calciferol
Iron	22mg (low bio-availability i.e 5-9%)
Iodine	150µg
Magnesium	201mg
Zinc	12.3mg
Selenium	27.6µg
Vitamin E	8.0 mg alpha-TE
Vitamin K	48.2µg
Biotin	25.3µg
Pantothenate	4.6µg

To recalculate the caloric intake according to age, gender and activity levels, the following table is helpful:³

³ Ibid (DHHS and DOA), Chapter 2, available at:
<http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter2.htm>

TABLE 2. Estimated Calorie Requirements (in Kilocalories) for Each Gender and Age Group at Three Levels of Physical Activity^a

Estimated amounts of calories needed to maintain energy balance for various gender and age groups at three different levels of physical activity. The estimates are rounded to the nearest 200 calories and were determined using the Institute of Medicine equation.

		Activity Level ^{b,c,d}		
Gender	Age (years)	Sedentary ^b	Moderately Active ^c	Active ^d
Child	2-3	1,000	1,000-1,400 ^e	1,000-1,400 ^e
Female	4-8	1,200	1,400-1,600	1,400-1,800
	9-13	1,600	1,600-2,000	1,800-2,200
	14-18	1,800	2,000	2,400
	19-30	2,000	2,000-2,200	2,400
	31-50	1,800	2,000	2,200
	51+	1,600	1,800	2,000-2,200
Male	4-8	1,400	1,400-1,600	1,600-2,000
	9-13	1,800	1,800-2,200	2,000-2,600
	14-18	2,200	2,400-2,800	2,800-3,200
	19-30	2,400	2,600-2,800	3,000
	31-50	2,200	2,400-2,600	2,800-3,000
	51+	2,000	2,200-2,400	2,400-2,800

^a These levels are based on Estimated Energy Requirements (EER) from the Institute of Medicine Dietary Reference Intakes macronutrients report, 2002, calculated by gender, age, and activity level for reference-sized individuals. "Reference size," as determined by IOM, is based on median height and weight for ages up to age 18 years of age and median height and weight for that height to give a BMI of 21.5 for adult females and 22.5 for adult males.

^b Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life.

^c Moderately active means a lifestyle that includes physical activity equivalent to walking about 1.5 to 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life

^d Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life.

^e The calorie ranges shown are to accommodate needs of different ages within the group. For children and adolescents, more calories are needed at older ages. For adults, fewer calories are needed at older ages.

⁵ The food groups in the USDA Food Guide are grains; vegetables; fruits; milk, yogurt, and cheese; and meat, poultry, fish, dry beans, eggs, and nuts. Food groups in the DASH Eating Plan are grains and grain products; vegetables; fruits; low-fat or fat-free dairy; meat, poultry, and fish; and nuts, seeds, and dry beans.

⁶ NIH Publication No. 03-2751, U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, March 2003.
<http://digestive.niddk.nih.gov/ddiseases/pubs/lactoseintolerance/index.htm>.