



Nutrition for Family Living

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July, 2000 Topics

New Pediatric Growth Charts Released
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New Pediatric Growth Charts Released

Most parents and health care providers are familiar with growth charts as a way to monitor children's growth. The Centers for Disease Control and Prevention (CDC) has released a new set of growth charts based on updated data that is more representative of the U.S. population and includes a chart for body mass index (BMI) to assess obesity.

Growth charts are one of the most widely used tools to track growth in children and to assess potential developmental problems. The charts are made up of a series of percentile curves on which an individual child's height and weight are plotted and compared with the population of U.S. children. The growth charts that health providers have been using are based on data collected from 1963-1974 and were last modified in 1978. Revision was planned because most of the data for children up to age 2 was collected from a sample of primarily formula-fed, white middle class infants in Ohio. Other areas targeted for revision were the extremes of the curves, above the 95th and below the 5th percentiles, and weight-for-height curves for adolescents.

The revised growth charts are based on data collected from 1963-1994, including Cycles II and III of the National Health Examination Survey (NHES II and III) and three National Health and Nutrition Examination Surveys (NHANES I, II, and III). Data were pooled from several sources to give a large enough sample for statistical precision. NHANES III data replaced the previous data used to create the charts for infants. For children age 6 and older, the most recent weight and BMI data from NHANES III was excluded because children today are heavier than in previous surveys. Including this data would shift the curves upward at the higher percentiles, so fewer children and adolescents would be classified as at risk of overweight ($\geq 85^{\text{th}}$ percentile) or overweight ($\geq 95^{\text{th}}$ percentile). Improved statistical procedures have produced smoother curves.

The major differences between the old charts and the new charts are summarized below:

- The 3rd and 97th percentiles have been added to all the new charts, and the 85th percentile has been added to the weight-for-height and BMI-for-age charts.
- A completely new chart has been developed for BMI-for-age to assess overweight.
- Smoothed z-score and percentile curves are compatible from one chart to the next (for example, the infant chart now transitions smoothly to the child chart).
- Data was included from five national surveys, and the data used for the old infant charts was replaced with national survey data.
- Charts for children and adolescents now extend to age 20.

The new charts are based on data from all races and ethnic groups of infants and children sampled. While racial/ethnic differences in growth exist, they are small and inconsistent, and the major influences on growth appear to be economic, nutritional and environmental.



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Breastfed and formula-fed infants are represented in the national survey data. The revised charts for infants should be more representative of the overall population than the 1977 charts, which were based on data from predominantly formula-fed infants.

WIC providers may find the revised weight-for-height charts for 2-5-year-olds to be particularly useful and will appreciate that the infant and child charts now transition smoothly. BMI-for-age information will be useful in identifying children who have the potential to become overweight. BMI correlates with body fat and it is now known that as early as age 2, children who have a high BMI and a family history of weight problems have a greater tendency to become overweight later in life. Once children with high BMI's are identified, parents have an opportunity to make decisions about their child's eating and exercise patterns before a problem develops.

The new growth charts, and a report explaining the details of their development, are available on the CDC web site at www.cdc.gov/growthcharts. Any versions of the weight-for-length charts that were downloaded from this site between May 30, 2000, and June 8, 2000, should be deleted and replaced with the revised and corrected versions.



Dietary Quality of Older Americans

Background (1)

In 1994, more than 33 million adults (13% of the American population) were aged 65 years and older; by 2030, this number will increase to 70 million (20% of the population) as baby boomers age. Older minorities will increase from 13% in 1990 to 25% of older adults in 2030. With life expectancy at 79 years for women and 72 years for men, older women are increasingly outnumbering older men, especially among the oldest old. Older women are three times as likely as men to be widowed, and 8 of 10 of the community-dwelling older persons who live alone are women.

Approximately 8% to 16% of older adults (2.5 to 4.9 million) do not have access at all times to a nutritionally adequate, culturally compatible diet. Federal programs to combat hunger and food insecurity reach only one third of needy older adults. Poverty is a strong indicator of malnutrition risk. Almost 20% of older adults are poor or nearly poor; older women experience nearly twice the poverty rate of older men.

Many older adults are at risk for malnutrition. Factors that contribute to this risk include hunger, poverty, inadequate food intake, social isolation, depression, dementia, dependency, functional disability, oral health and chewing and swallowing problems, presence of acute or chronic diseases or conditions, multiple medications, and advanced age. An evaluation of the Elderly Nutrition Program of the Older Americans Act indicates that 67% to 88% of participants are at moderate to high nutritional risk. Community-based programs such as congregate meals and home-delivered meals are observing serious nutrition-related problems among older adults, especially among the frail homebound. Many older adults have two to three diagnosed chronic health conditions; 26% of participants in congregate meal programs and 43% of those who receive home-delivered meals had a hospital or nursing facility stay in the previous year. One survey found that almost two thirds of respondents had a weight outside the healthful range and that 18% to 32% had involuntarily gained or lost 10 lb within the 6 months before the survey.

The Healthy Eating Index (2)

An evaluation of the USDA Continuing Survey of Food Intakes by Individuals (CSFII) 1994-1996 was conducted by the Center for Nutrition Policy and Promotion. The Healthy Eating Index (HEI) was used as a measure of the overall quality of older Americans' diets. A score from 0-100 is calculated as the sum of ten items scored from 1-10. For each item, the higher score represents the healthier behavior. Five items measure the number of servings consumed from each pyramid group; four items measure compliance with Dietary Guidelines for total fat, saturated fat, cholesterol and sodium, and one item evaluates variety in the diet. An overall score above 80 indicates a "good" diet, a score between 51-80 indicates a diet that "needs improvement," and a score less than 51 indicates a "poor" diet.



Scores were compared for four groups, “pre-elderly” age 45-64, and three groups of elderly respondents aged 65-74, 75-84, and 85 and older. Interestingly, the “pre-elderly” group had lower average HEI scores than any of the elderly groups. The average HEI score for elderly respondents over age 65 was 67.2 out of 100; the average score for the pre-elderly group was 63.4. Both fall in the “needs improvement” range. As age increased, there was a small but gradual increase in the percentage of elderly with scores in the “poor” range. Among the elderly, HEI scores decreased as income decreased, indicating a greater risk for a poor diet among those with less income. The data showed that the elderly appear to be consuming enough different foods, so nutrition education should emphasize the nutrient density and quantity of foods the elderly consume. Milk and fruit groups had the lowest HEI scores and deserve special emphasis. Dietary quality may have been influenced by factors such as physical limitations, depression, and chronic disease which should be considered when planning educational interventions.

Dietary Changes from 1977 to 1996 (3)

Another analysis of the CSFII data compared food and nutrient intakes in 1994-1996 with intakes from 1977-1978. Data were compiled from 24-hour recalls and 2-day food records collected as part of the USDA Nationwide Food Consumption Survey of 1977-1978 and the 1994-1996 CSFII.

Older Americans made major changes in their diets from 1977 to 1994. They consumed less red meat, eggs, and sugars and sweets, and consumed more legumes, total grains, and fruit in 1994 than they did in 1977. These changes meant they consumed less fat, saturated fat, cholesterol, zinc and sodium and more vitamins A and C, folate, fiber, and calcium. Their intake of energy, dietary fiber, vitamins B6 and E, calcium, magnesium and zinc were still lower than recommended. Milk consumption decreased and soft drink and fruit drink consumption increased between 1977 and 1994. This trend is a concern because of the implications for bone health. Also, low intakes of zinc and dietary fiber indicate that foods from the meat group and whole grain products should be encouraged. The authors of this study recommend that older adults be encouraged to consume more servings from the fruit, vegetables, grain, milk and meat groups to improve their overall dietary quality. They suggest that their low energy intake is preventing older adults from getting enough balance in their diet to meet their vitamin and mineral needs.

Implications

The quality of older Americans’ diets has become more consistent with the Dietary Guidelines during the past twenty years but there is still room for improvement. These studies suggest that emphasizing nutrient dense foods such as whole grains, dark leafy



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green vegetables, fruits, low-fat milk products and low-fat meats, and more servings from each pyramid group, could be an effective educational strategy to improve the overall nutrient intake of this population.

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