

Healthy People 2010 Operational Definition

19-11. Increase the proportion of persons aged 2 years and older who meet dietary recommendations for calcium.

National Data Source	National Health and Nutrition Examination Survey (NHANES): CDC, NCHS; USDA, ARS.
State Data Source	Not identified.
Healthy People 2000 Objective	Adapted from 2.8 (Nutrition).
Changes since the 2000 Publication	Revised baseline (see Comments). Revised target (see Comments).
Measure	Percent (age adjusted - see Comments).
Baseline (Year)	31 (1988-94)
Target	74
Target-Setting Method	Better than the best racial/ethnic subgroup. For a discussion of target-setting methods, see Part A, section 4.
Numerator	Number of persons aged 2 years and older who report calcium intake at or above approximated mean requirements.
Denominator	Number of persons aged 2 years and older.
Population Targeted	U.S. civilian, noninstitutionalized population.
Questions Used to Obtain the National Baseline Data	From the 1988-94 National Health and Nutrition Examination Survey: <u>Foods:</u> NHANES included the collection of 1 day of dietary data for all respondents through in-person 24-hour recalls ¹ and 2-day dietary data on a small subset through telephone 24-hour recalls. (Beginning in 2002, two 24-hour recalls were asked of everyone.) Each respondent was asked to recall the kinds and amounts of foods and beverages consumed at home and away from home during the previous day (midnight to midnight). Amounts of foods and beverages reported in household measures were then converted to gram amounts, and calcium intake from foods and beverages was estimated with the use of food composition files. Additional questions used to assess

total calcium intake include:

Dietary supplement use:

- *Has (Person) taken any vitamins or minerals in the past month? Please include those that are prescribed by a doctor or dentist and those that are not prescribed.*
- *Has (Person) taken or used any medicines for which a doctor's or dentist's prescription is needed, in the past month? This includes any products which cannot be obtained without a doctor's or dentist's prescription. Include those medicines which you may have already mentioned.*

[If yes:]

- *May I see the containers for all of the (vitamins and minerals/prescription medicines) (Person) took in the past month?*
 - Enter complete name of vitamin/mineral from label, or probe respondent:
 - Container seen
 - Container not seen
 - Product furnished by respondent
 - Product name not on container
 - Enter manufacturer's or distributor's name and address (city and State)
- *How often did (Person) take (product) in the past month?*
- *How much (product) did (Person) take each time (Person) took it?*
 - Number of capsules, tablet/pills; teaspoons; tablespoons; fluid ounces/ounces; drops/droppers; packets/packs/packages; ml.; wafers; other

Antacid use:

- Enter complete name of antacid from label or probe respondent:
 - Antacid seen
 - Antacid not seen. Product name furnished by respondent.
- *How often did you take (antacid) in the past month?*
- *How much (antacid) did you take each time you took it?*

Expected Periodicity Periodic.

Comments The recommendations for adequate intakes of calcium are 500 mg per day for children aged 1 to 3 years, 800 mg for children aged 4 to 8 years, 1,300 mg for adolescents aged 9 to 18 years, 1,000 mg for adults aged 19 to 50 years, and 1200 mg for adults

aged 51 years and older.² For the original baseline, “meet dietary recommendations for calcium” was operationally defined as greater than or equal to 77 percent of the Institute of Medicine (IOM) Adequate Intake level (AI) for an age-gender group. This was assumed to approximate mean requirements based on an approach used for the Third Report on Nutrition Monitoring in the United States.³

To determine total calcium intake, several sources of calcium were considered, including foods, dietary supplements, and antacids, but not including calcium from drinking water.

For the original baseline, a statistical procedure was used to remove the within-person variation in daily calcium intakes from food⁴ and thus provide better estimates of usual intake of calcium with the use of a limited number of days of dietary data per individual (1 day of dietary data for all NHANES respondents and 2-day dietary data for a subset).

If antacids data were missing, it was assumed that no calcium was provided by antacids, but the individual was kept in the calculation.

Breast-feeding children were excluded from the analysis.

During the first half of this decade, the original baseline of 46 percent was revised to 45 percent according to a new algorithm on the contribution of antacids to total calcium intake. The target was proportionally adjusted from 75 to 74 percent to reflect the revised baseline using the original target-setting method (i.e., the revised target was based on the original percent improvement better than the best race or ethnic group applied to the revised best race or ethnic group).

During the second round of the progress review (2008), the baseline was once again revised. First, with the release of recent Institute of Medicine reports that addressed limitations of AI values, it was recognized that there was not a firm basis to conclude that 77 percent of the AI is an approximated mean requirement. Consequently, the operational definition was changed to greater than or equal to 100 percent of the AI. However, it

is also recognized that while individuals with usual intakes at or above 100 percent of the AI have a low probability of inadequacy, the AI cannot be used to determine the proportion of a population group with inadequate intakes.

Second, the baseline was revised using a modified procedure designed to remove some of the bias of the 1986 statistical procedure to estimate usual intakes.⁵

Data are age adjusted to the 2000 standard population using the age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79 and 80 years and over. Age-adjusted rates are weighted sums of age-specific rates. For a discussion of age adjustment, see Part A, section 7.

This objective differs from Healthy People 2000 objective 2.8, which only tracked the proportion of the population who consumed the recommended number of servings of milk and milk products; the 2000 objective did not consider calcium intake from other foods, dietary supplements, and antacids. Given that significant sources of calcium are not limited to milk products and not all persons choose to consume them, the Healthy People 2010 objective aims to increase total calcium intake. However, because consumption of milk products is low relative to recommendations for adolescents and other groups who would especially benefit from increased consumption of calcium-rich foods, it is still often desirable to track milk product consumption at the national and State levels as supplementary data, as well as to track the contribution of other sources of total calcium intake. The data used to track the Healthy People 2000 objective were not age adjusted.

For some measures, data do not meet the criteria for statistical reliability, data quality, or confidentiality and have been suppressed. Information on suppression of data for the major Healthy People 2010 data systems has been published in a *Healthy People Statistical Note*.⁶

See Part C for a description of NHANES and Appendix A for focus area contact information.

References

1. National Center for Health Statistics (NCHS). *National Health and Nutrition Examination Survey III: Data Collection Forms*. Hyattsville, MD: Public Health Service (PHS), 1990.
2. Institute of Medicine. *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academy Press, 1997.
3. Life Sciences Research Office, Federation of American Societies for Experimental Biology (Prepared for the Interagency Board for Nutrition Monitoring and Related Research). *Third Report on Nutrition Monitoring in the United States*. Vol. I. Washington, DC: the Federation, 104-105, 1995.
4. National Research Council. *Nutrient Adequacy: Assessment Using Food Consumption Surveys*. Washington DC: National Academy Press, 1986.
5. Carriquiry, A.L. Estimation of usual intake distributions of nutrients and foods. *J Nutr* 133:601S-608S, 2003.
6. Klein, R.J.; Proctor, S.E.; Boudreault, M.A.; Turczyn, K.M. Healthy People 2010 Criteria for Data Suppression. *Statistical Notes* No. 24. Hyattsville, MD: National Center for Health Statistics. 2002.