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Costs of Complementary and Alternative Medicine (CAM) and Frequency of Visits to CAM Practitioners: United States, 2007

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Abstract

Objective—This report presents selected estimates of costs of complementary and alternative medicine (CAM) use among U.S. adults, the frequency of visits made to CAM providers, and the frequency of purchases of self-care CAM therapies. Data from the 2007 National Health Interview Survey (NHIS), which is conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics, are used in this report.

Methods—Estimates were derived from the Complementary and Alternative Medicine Supplement of the 2007 NHIS, sponsored by the National Center for Complementary and Alternative Medicine, which is part of the National Institutes of Health. Estimates were generated using the SUDAAN statistical package to account for the NHIS complex sample design.

Results—In 2007, adults in the United States spent \$33.9 billion out of pocket on visits to CAM practitioners and purchases of CAM products, classes, and materials. Nearly two-thirds of the total out-of-pocket costs that adults spent on CAM were for self-care purchases of CAM products, classes, and materials during the past 12 months (\$22.0 billion), compared with about one-third spent on practitioner visits (\$11.9 billion). Despite this emphasis on self-care therapies, 38.1 million adults made an estimated 354.2 million visits to practitioners of CAM. About three-quarters of both visits to CAM practitioners and total out-of-pocket costs spent on CAM practitioners were associated with manipulative and body-based therapies. A total of 44% of all out-of-pocket costs for CAM, or about \$14.8 billion, was spent on the purchase of nonvitamin, nonmineral, natural products.

Keywords: complementary and alternative medicine • National Health Interview Survey

Introduction

Complementary and alternative medicine (CAM) comprises a diverse set of healing philosophies, therapies, and

products (1). Over the last decade, the U.S. public has shown a steady and substantial use of complementary and alternative medicine, with 2007 estimates placing overall prevalence of

use at 38.3% of adults (83 million persons) and 11.8% of children (8.5 million children under age 18 years) (2). The most recent national estimates of out-of-pocket expenditures for CAM therapies are now more than a decade old (3). In their 1997 telephone survey, Eisenberg et al (3) contacted a nationally representative sample of 2,055 individuals aged 18 years or older, with a weighted response rate of 60%. At that time, the total out-of-pocket expenditure for CAM use in adults was estimated at \$27.0 billion per year, with \$12.2 billion of the total going toward payment of CAM professionals such as acupuncturists, chiropractors, and massage therapists.

This report is based on a CAM survey supplement administered as part of the sample adult questionnaire of the 2007 National Health Interview Survey (NHIS). The report focuses on the out-of-pocket expenditures on CAM. Estimates of total cost and cost per visit for all CAM therapies used, as well as prevalence of use of individual CAM therapies and the associated per-visit costs to a CAM provider, are presented. The report also examines the number of visits made to CAM providers in a 12-month period. A previous report discussed the prevalence of CAM use among adults and children (2).



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics



Methods

Data source

The statistics shown in this report are based on data from the Adult Complementary and Alternative Medicine supplement of the 2007 NHIS (4). NHIS, which is in the field continuously, is conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics. It is a survey of a nationally representative sample of the civilian, noninstitutionalized household population of the United States. In the family section, basic health and demographic information is collected on all household members. All adult members of the household who are home at the time of the interview are invited to participate and respond for themselves, with proxy responses allowed for persons unavailable at the time of the interview. Additional information is collected on one randomly selected adult aged 18 years or over (sample adult) and one randomly selected child aged 0–17 years (sample child) in each family. Information on the sample adult is self-reported except in rare cases when the sample adult is physically or mentally incapable of responding, and information on the sample child is collected from an adult who is knowledgeable about the child's health, usually a parent.

The 2007 CAM supplement was administered to sample adults and respondents for sample children. It included questions on 36 types of CAM therapies used in the United States, including 10 types of provider-based CAM therapies (e.g., acupuncture, chiropractic and osteopathic manipulation, traditional healers) and 26 other CAM therapies for which the services of a provider are not necessary (e.g., nonvitamin, nonmineral, natural products; special diets; movement therapies); see “Technical Notes,” “Definition of terms,” for a list and definitions of all 36 CAM therapies. Following the taxonomy of unconventional health care proposed by Kaptchuk and Eisenberg (1), stress

management classes, support groups, and religious (faith) healing are not included in the definition of CAM used in this report, although questions on their use were included in the CAM supplement. Within the CAM supplement, one section asked about participants' use of “herbal supplements.” This section queried participants on a list of 45 dietary supplements that went beyond the category of “herbal supplements” to include such items as androstenedione, carnitine, creatine, DHEA, fish oils, glucosamine, lutein, lycopene, melatonin, omega fatty acids, prebiotics or probiotics, and SAM-e, but not vitamins or minerals. Therefore, to more correctly label this extensive set of dietary supplements in this report, this group of supplements is referred to as nonvitamin, nonmineral, natural products.

Inclusion and development of the 2007 CAM supplement was supported by seven institutes, centers, or offices of the National Institutes of Health:

- National Center for Complementary and Alternative Medicine
- National Heart, Lung and Blood Institute
- National Institute of Allergy and Infectious Disease
- National Institute of Child Health and Human Development
- National Institute of Mental Health
- Office of Behavioral and Social Science Research
- Office of Dietary Supplements

Strengths and limitations of the data

A major strength of the NHIS CAM data is that they were collected for a nationally representative sample of U.S. adults, allowing estimation of CAM use for a wide variety of population subgroups. The large sample size also facilitates investigation of the association between CAM and a wide range of other self-reported health characteristics included in the NHIS, such as health behaviors, chronic health conditions, injury and poisoning

episodes, access to medical care, and health insurance coverage.

The NHIS questions have several limitations: 1) The questions are dependent on respondents' memory and their willingness to report use accurately. 2) The collection of survey data at a single point in time results in an inability to produce consecutive annual prevalence estimates, and can reduce the ability to produce reliable prevalence estimates for small population subgroups, as this could require a larger sample and more than one year of data. 3) The total costs per person for nonvitamin, nonmineral, natural products and homeopathy were calculated by multiplying the amount spent at the most recent purchase by the number of purchases per year. Because data were not available for the exact cost at each purchase, and the most recent purchase may not have been typical of the respondent's usual purchase of CAM products, the estimates may contain errors.

Statistical analysis

In 2007, NHIS interviews were completed in 29,266 households, which yielded 75,764 persons in 29,915 families and a household response rate of 87.1%. This report is based on data from 23,393 completed interviews with sample adults aged 18 years and over. The final 2007 sample adult response rate was 67.8%. Procedures used in calculating response rates are detailed in Appendix I of the Survey Description Document, NHIS data files (5).

All estimates and associated standard errors shown in this report were generated using SUDAAN, a software package designed to account for a complex sample design such as that of NHIS (6). All estimates for adults were weighted, using the sample adult record weight, to represent the U.S. civilian, noninstitutionalized population aged 18 years and over.

Estimates were calculated using recodes for the number of times the respondent saw various CAM practitioners, the amount paid out of pocket for each CAM practitioner visit,

the number of times self-care therapies were purchased, and the amount paid out of pocket for the self-care therapy (see “Technical Notes,” “Calculation of estimates,” for a detailed explanation of the recodes and “Definition of terms” for definitions of CAM practitioner and self-care therapies). Persons with unknown CAM information have been excluded from the analysis.

In tables shown in this report, estimates with a relative standard error of more than 30% but less than or equal to 50% are identified with an asterisk (*), indicating that they are statistically unstable due to small sample size. Estimates with a relative standard error of greater than 50% are indicated with a dagger (†) and are not shown.

Results

Out-of-pocket costs for CAM (figure)

- In 2007, adults in the United States spent \$33.9 billion out of pocket on visits to CAM practitioners and purchases of CAM products, classes, and materials (see figure).
- Nearly two-thirds of the total out-of-pocket costs that adults spent on CAM were for self-care purchases of CAM products, classes, and materials during the past 12 months (\$22.0 billion) compared with about one-third spent on practitioner visits (\$11.9 billion) (see figure).
- A total of 44% of all out-of-pocket costs for CAM was spent on the purchase of nonvitamin, nonmineral, natural products (see figure).

CAM practitioner therapies (Tables 1–3)

- In 2007, 38.1 million adults made an estimated 354.2 million visits to CAM practitioners, at an estimated out-of-pocket cost of \$11.9 billion dollars (Table 1).
- About three-quarters of both visits to CAM practitioners and total out-of-pocket costs spent on CAM practitioners during the past 12 months were associated with

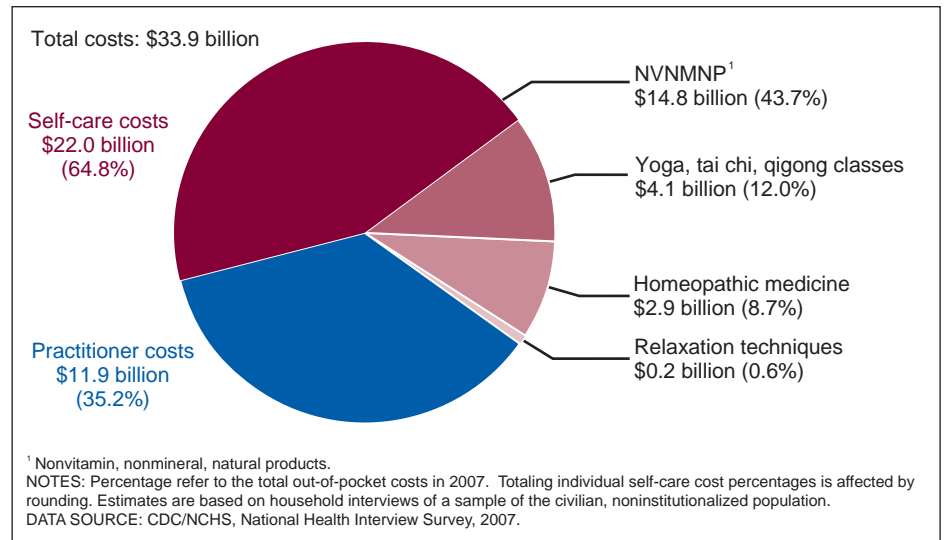


Figure. Out-of-pocket costs for complementary and alternative medicine among adults aged 18 years and over: United States, 2007

- manipulative and body-based therapies (Table 1).
- On average, adults in the United States spent \$121.92 per person for visits to CAM providers and paid \$29.37 out of pocket per visit. Some of the highest per-person, out-of-pocket costs are associated with visits to practitioners of naturopathy and chelation therapy, while one of the lowest per-person, out-of-pocket costs is associated with visits to practitioners of chiropractic or osteopathic manipulation therapy (Table 2).
- For most types of CAM therapies, the majority of adults spent less than \$50 per visit to a practitioner. However, at least 20% of persons visiting practitioners of acupuncture, homeopathy, naturopathy, massage, and hypnosis therapy paid \$75 or more per visit (Table 3).

CAM self-care therapies (Tables 4–5)

- Nonvitamin, nonmineral, natural products (\$14.8 billion) accounted for the majority of out-of-pocket dollars spent on CAM self-care purchases (Table 4).
- Adults who made CAM self-care purchases spent a total of \$4.1 billion out of pocket on yoga, tai chi, or qigong classes (Table 4).

- Adults spent \$2.9 billion out of pocket on the purchase of homeopathic medicine in 2007 (Table 4).
- Across categories of self-care CAM products, most adults who purchased the products spent less than \$30 per purchase. However, about 5% of individuals who bought nonvitamin, nonmineral, natural products or who purchased self-help materials to learn relaxation techniques spent more than \$120 per purchase (Table 5).

Discussion

Using data from the 2007 NHIS, we estimate that U.S. adults spent about \$33.9 billion out of pocket on visits to CAM practitioners and on purchases of CAM products, classes, and materials. This equates to 1.5% of total health-care expenditures in the United States and to 11.2% of out-of-pocket health-care expenditures (7). Almost two-thirds of CAM costs were associated with self-care therapies such as nonvitamin, nonmineral, natural products; homeopathic products; and yoga. Of this, the public spent \$14.8 billion out of pocket to purchase nonvitamin, nonmineral, natural products—about 31% of the amount that the public spent out of pocket to buy pharmaceutical drugs in 2007 (\$47.6 billion) (7). The public also spent \$12.4 billion out of pocket on visits to CAM providers, or

25% of that spent out of pocket for conventional physician services (\$49.6 billion) (7).

It has been 10 years since the last national estimates on the cost of CAM and on the number of visits to CAM providers were made by Eisenberg and colleagues (3). That survey varied from the 2007 NHIS in several ways, including being a telephone survey and collecting information differently on the cost of CAM therapies. Nevertheless, comparisons between the two surveys are of special interest given that they collected information on an overlapping, if not identical, set of CAM therapies and that both provide national estimates of costs and visits.

The greatest contrast between the two surveys concerns the relative amount of out-of-pocket dollars spent on CAM providers compared with self-care CAM therapies such as homeopathic products, yoga, and nonvitamin, nonmineral, natural products. The present observation that about two-thirds of CAM costs were associated with self-care therapies contrasts with the findings of Eisenberg et al. (3), who reported that the majority of CAM costs resulted from consultations with health-care professionals offering CAM services (3). While these differences may be partly attributed to variations in survey methodology, they are consistent with the hypothesis that the use of self-care therapies has increased and the use of CAM health-care professionals has decreased. For instance, using the Consumer Price Index and expressing 1997 costs in 2007 dollars, the out-of-pocket costs in 2007 for CAM practitioner services (\$11.9 billion) fell outside the range calculated by Eisenberg et al. (\$15.8 billion–\$25.3 billion) (3), while the NHIS cost estimate of nonvitamin, nonmineral, natural products is more than twice that estimated by Eisenberg et al. (\$14.8 billion vs. \$6.6 billion). Some of these differences in estimated expenditures may be the result of differences in how nonvitamin, nonmineral, natural products were operationally defined in the two surveys, or in how cost per purchase was determined, or other differences in survey design and

implementation. However, these estimated expenditures are broadly consistent with industry sales data that also demonstrate a large increase in expenditures for nonvitamin, nonmineral, natural products between 1997 and 2007 (8). Industry sales data, however, suggest lower total expenditures for homeopathic medicine than the estimates derived here (9).

Comparison of the two surveys suggests that the number of visits U.S. adults make to CAM practitioners has dropped by about 50% since 1997—628.8 million or 3,176 visits per 1,000 adults in 1997 (3) compared with 354.2 million or 1,592 visits per 1,000 adults in 2007. The Eisenberg et al. estimate of visits to CAM providers (3) was even somewhat similar in size to the total number of office visits to physicians [M.D. and doctor of osteopathy (D.O.)] in 1997 (787.4 million) (10). However, the estimated number of office visits to CAM providers in the 2007 NHIS is substantially lower than the projected number of visits to physicians (M.D. and D.O.) for 2007 (more than 902.0 million visits) (11). While some of these discrepancies may result from the different methodologies used in the two surveys, as well as the different types of CAM therapies queried, the 2007 NHIS data suggest that a major factor in the reduction in visits to CAM providers in 2007 compared with 1997 was a decline in the number of adults who sought care from these practitioners and the frequency of this care.

The two practitioner groups that had the largest reduction in visits in 2007 compared with 1997 were practitioners of energy-healing therapies and the various relaxation techniques. Together, the drop in visits to these two groups of practitioners accounted for about half of the total decrease in 2007 from 10 years earlier. Visits to practitioners of relaxation techniques declined from 103.2 million in 1997 (521.2 visits per 1,000 adults) (3) to 28.9 million in 2007 (128.9 visits per 1,000 adults), while visits to energy healers decreased from 40.0 million in 1997 (201.9 visits per 1,000 adults) (3) to 7.2 million in 2007 (32.4 visits per 1,000 adults).

Underlying these declines in the number of visits is a corresponding decrease in the numbers of persons who sought care from practitioners. While 15.3% of persons who used relaxation techniques sought care from a practitioner of relaxation techniques in 1997 (3), the proportion dropped to 9.0% in 2007. For those who saw a practitioner, the number of visits per person in 2007 was about one-fifth of that observed in 1997: 3.5 visits per person compared with 20.9 visits per person (3), respectively. Approximately twice as many individuals bought a self-help book or other materials to learn relaxation techniques in 2007 (6.4 million) as saw a practitioner (3.1 million), suggesting that relaxation techniques are used primarily as self-care. Similarly, the percentage of the adult population who saw a practitioner of energy-healing therapy declined by half in 2007 (0.5%) compared with 1997 (1.0%), while the number of visits per person dropped by almost 90%, from 20.2 visits per person in 1997 to 2.3 visits per person in 2007 (2,3).

Despite the overall decrease in visits to CAM providers in 2007 compared with 1997, visits to acupuncturists, a progressively more regulated and professionalized CAM provider group, increased over this same time period, with 17.6 million visits estimated for 2007 (79.2 visits per 1,000 adults), or three times that observed in 1997 (27.2 visits per 1,000 adults) (3). The increase for acupuncture may in part be due to the greater number of states that license this practice and a corresponding increase in the number of licensed practitioners in 2007 compared with 1997, as well as increased insurance coverage for these therapies. Large numbers of articles in the lay press about the benefits of acupuncture were published during this period, increasing awareness in the general population. Together, greater opportunity and increased awareness may explain much of the observed increase in adult use of acupuncture.

In summary, NHIS data indicate that the U.S. public makes more than 300 million visits to CAM providers each year and spends billions of dollars

for these services, as well as for self-care forms of CAM. These expenditures, although a small fraction of total health-care spending in the United States, constitute a substantial part of out-of-pocket health-care costs and are comparable to out-of-pocket costs for conventional physician services and prescription drug use.

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Table 1. Frequencies and percentages of persons aged 18 years and over who saw a practitioner for selected complementary and alternative medicine therapies during the past 12 months, total practitioner visits per year, and total out-of-pocket costs per year, by type of therapy: United States, 2007

Therapy	Saw a practitioner					
	Total persons ¹		Total visits per year		Total out-of-pocket costs per year (dollars)	
	Number (thousands)	Percent (standard error)	Number (thousands)	Percent (standard error)	Number (thousands)	Percent (standard error)
Total	38,146	100.0	354,203	100.0	11,938,611	100.0
Alternative medical systems	4,965	13.1 (0.72)	27,734	7.8 (0.57)	1,392,508	11.7 (1.10)
Acupuncture ²	3,141	8.2 (0.55)	17,629	5.0 (0.44)	827,336	6.9 (0.86)
Ayurveda ²	214	*0.6 (0.18)	1,068	†	18,793	*0.2 (0.07)
Homeopathic treatment ²	862	2.3 (0.30)	3,411	1.0 (0.15)	167,416	1.4 (0.30)
Naturopathy ²	729	1.9 (0.26)	3,180	0.9 (0.15)	275,863	2.3 (0.44)
Traditional healers ³	812	2.1 (0.35)	2,446	0.7 (0.14)	103,100	*0.9 (0.30)
Biologically based therapies	1,828	4.8 (0.40)	9,600	2.7 (0.34)	630,479	5.3 (1.11)
Chelation therapy ²	111	*0.3 (0.11)	426	*0.1 (0.06)	31,913	*0.3 (0.11)
Nonvitamin, nonmineral, and natural products ²	1,488	3.9 (0.38)	8,273	2.3 (0.33)	566,650	4.7 (1.11)
Diet-based therapies ^{2,4}	270	0.7 (0.15)	902	*0.3 (0.08)	31,916	†
Manipulative and body-based therapies	33,044	86.7 (0.69)	276,861	78.2 (1.09)	8,629,455	72.3 (2.08)
Chiropractic or osteopathic manipulation ²	18,740	49.2 (1.07)	151,220	42.7 (1.16)	3,901,894	32.7 (1.81)
Massage ²	18,068	47.4 (0.98)	95,296	26.9 (0.86)	4,175,124	35.0 (1.53)
Movement therapies ⁵	3,146	8.3 (0.52)	30,345	8.6 (0.67)	552,438	4.6 (0.87)
Mind-body therapies	3,821	10.2 (0.59)	32,806	9.3 (0.79)	864,567	7.2 (1.25)
Biofeedback ²	362	1.0 (0.22)	1,991	0.6 (0.15)	83,542	†
Relaxation techniques ⁶	3,131	8.3 (0.54)	28,882	8.2 (0.75)	707,175	5.9 (1.16)
Hypnosis ²	561	1.5 (0.24)	1,933	0.5 (0.15)	73,850	0.6 (0.16)
Energy-healing therapy ²	1,216	3.2 (0.31)	7,203	2.0 (0.36)	421,602	*3.5 (1.09)

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and less than or equal to 50% and do not meet the standards of reliability or precision.

† Estimates with a relative standard error greater than 50% are indicated with a dagger, but are not shown.

¹The totals of the numbers and percentages of the individual therapies are greater than the total number and 100% because respondents could choose more than one therapy. The totals of the numbers and percentages of the five therapy groups are greater than the total number and 100% because respondents could choose more than one therapy and would therefore be counted in more than one group.

²Estimates are based on the questions, "DURING THE PAST 12 MONTHS, how many times did you see a practitioner for {fill in therapy}?" and "On average, how much did you pay out-of-pocket for each visit to a practitioner for {fill in therapy}?"

³Traditional healers include Curandero, Espiritista, Hierbero or Yerbera, Shaman, Botanica, Native American Healer/Medicine Man, and Sobador. Estimates are based on the questions, "DURING THE PAST 12 MONTHS, how many times did you see a {fill in traditional healer}?" and "On average, how much did you pay out-of-pocket for each visit to a {fill in traditional healer}?"

⁴Diet-based therapies include vegetarian diet, macrobiotic diet, Atkins diet, Pritikin diet, Ornish diet, Zone diet, and South Beach diet.

⁵Movement therapies include Feldenkrais, Alexander technique, Pilates, and Trager Psychophysical Integration. Estimates are based on the questions, "DURING THE PAST 12 MONTHS, how many times did you see a practitioner or teacher for {fill in movement therapy}?" and "On average, how much did you pay out-of-pocket for each visit to a practitioner or teacher for {fill in movement therapy}?"

⁶Relaxation techniques include meditation, guided imagery, progressive relaxation, and deep-breathing exercises. Estimates are based on the questions, "DURING THE PAST 12 MONTHS, did you see a practitioner or take a class for {fill in relaxation technique}?" and "On average, how much did you pay out-of-pocket for each visit to a practitioner or to take a class for {fill in relaxation technique}?"

NOTE: The denominators for statistics shown exclude persons with unknown complementary and alternative medicine information. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2007.

Table 2. Median (with 95% confidence intervals) number of visits per person, median out-of-pocket costs per person, and median out-of-pocket costs per visit for persons aged 18 years and over who saw a practitioner for selected complementary and alternative medicine therapies during the past 12 months, by type of therapy: United States, 2007

Therapy	Saw a practitioner		
	Number of visits per person	Out-of-pocket costs per person (dollars)	Out-of-pocket cost per visit (dollars)
		Median (95% confidence interval)	
Total	3.86 (3.49–4.42)	121.92 (114.69–141.55)	29.37 (29.05–30.76)
Alternative medical systems	2.83 (2.65–3.01)	101.00 (86.91–136.03)	39.59 (33.56–48.40)
Acupuncture ¹	2.42 (2.10–2.75)	122.35 (100.10–171.31)	48.25 (38.40–49.50)
Ayurveda ¹	§	§	§
Homeopathic treatment ¹	2.00 (1.47–2.52)	*86.73 (36.38–155.81)	32.16 (12.18–39.81)
Naturopathy ¹	1.98 (1.48–2.42)	251.84 (102.11–333.99)	63.25 (45.23–91.69)
Traditional healers ²	§	*28.57 (7.37– 48.50)	19.00 (5.39–27.27)
Biologically based therapies	2.13 (1.53–2.74)	97.86 (65.32–178.40)	29.62 (23.81–45.30)
Chelation therapy ¹	§	224.52 (133.12–315.80)	§
Nonvitamin, nonmineral, natural products ¹	2.32 (1.70–2.98)	*102.16 (67.50–190.39)	32.90 (27.21–46.86)
Diet-based therapies ^{1,3}	§	§	§
Manipulative and body-based therapies	3.43 (3.33–3.69)	121.30 (114.38–142.77)	29.45 (29.13–29.77)
Chiropractic or osteopathic manipulation	3.45 (3.28–3.89)	104.29 (88.15–119.45)	21.62 (19.73–24.30)
Massage ¹	2.16 (2.01–2.31)	136.73 (107.17–144.60)	46.65 (45.46–47.82)
Movement therapies ⁴	4.98 (3.46–6.57)	†	*4.55 (0.36– 8.31)
Mind-body therapies	*3.22 (2.67–7.07)	§	§
Biofeedback ¹	2.38 (1.37–3.41)	§	§
Relaxation techniques ⁵	3.47 (2.96–5.89)	§	§
Hypnosis ¹	§	†	44.06 (20.52–61.31)
Energy-healing therapy ¹	2.26 (1.69–2.88)	*59.58 (36.22–131.22)	28.47 (14.43–43.72)

§ Based on the small amount and/or the distribution of the data, it was not possible to estimate confidence interval boundaries, and the median is not shown.

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and less than or equal to 50% and do not meet the standard of reliability or precision.

† Estimates with a relative standard error greater than 50% are indicated with a dagger, but are not shown.

¹ Estimates are based on the questions, "DURING THE PAST 12 MONTHS, how many times did you see a practitioner for {fill in therapy}?" and "On average, how much did you pay out-of-pocket for each visit to a practitioner for {fill in therapy}?"

² Traditional healers include Curandero, Espiritista, Hierbero or Yerbera, Shaman, Botanica, Native American Healer/Medicine Man, and Sobador. Estimates are based on the questions, "DURING THE PAST 12 MONTHS, how many times did you see a {fill in traditional healer}?" and "On average, how much did you pay out-of-pocket for each visit to a {fill in traditional healer}?"

³ Diet-based therapies include vegetarian diet, macrobiotic diet, Atkins diet, Pritikin diet, Ornish diet, Zone diet, and South Beach diet.

⁴ Movement therapies include Feldenkrais, Alexander technique, Pilates, and Trager Psychophysical Integration. Estimates are based on the questions, "DURING THE PAST 12 MONTHS, how many times did you see a practitioner or teacher for {fill in movement therapy}?" and "On average, how much did you pay out-of-pocket for each visit to a practitioner or teacher for {fill in movement therapy}?"

⁵ Relaxation techniques include meditation, guided imagery, progressive relaxation, and deep-breathing exercises. Estimates are based on the questions, "DURING THE PAST 12 MONTHS, did you see a practitioner or take a class for {fill in relaxation technique}?" and "On average, how much did you pay out-of-pocket for each visit to a practitioner or to take a class for {fill in relaxation technique}?"

NOTES: The estimates shown exclude persons with unknown complementary and alternative medicine information. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2007.

Table 3. Percent distributions (with standard errors) of average out-of-pocket costs per visit to a practitioner for complementary and alternative medicine therapy, for persons aged 18 years and over who saw a practitioner for that type of therapy during the past 12 months, by therapy: United States, 2007

Therapy	Practitioner costs (dollars)					Total
	0–24	25–49	50–74	75–99	100 or more	
	Percent distribution (standard error)					
Alternative medical systems						
Acupuncture ¹	32.4 (3.12)	16.2 (2.23)	25.6 (2.75)	10.9 (2.15)	14.9 (2.49)	100.0
Ayurveda ¹	*52.4 (15.99)	†	†	†	†	100.0
Homeopathic treatment ¹	44.2 (6.98)	*20.1 (6.75)	*10.1 (3.49)	*5.7 (2.43)	19.8 (5.04)	100.0
Naturopathy ¹	22.9 (5.24)	*14.8 (4.50)	*13.2 (4.51)	*11.9 (5.37)	37.2 (6.10)	100.0
Traditional healers ²	57.4 (7.03)	15.7 (4.30)	*6.8 (3.21)	–	*20.1 (7.45)	100.0
Biologically based therapies						
Chelation therapy ¹	†	†	†	†	*51.0 (19.56)	100.0
Nonvitamin, nonmineral, natural products ¹	35.4 (4.63)	21.1 (4.34)	22.3 (4.21)	*5.0 (2.41)	16.2 (3.70)	100.0
Diet-based therapies ^{1,3}	69.3 (10.56)	†	†	–	†	100.0
Manipulative and body-based therapies						
Chiropractic or osteopathic manipulation	50.4 (1.39)	34.9 (1.41)	8.4 (0.86)	2.2 (0.42)	4.1 (0.53)	100.0
Massage ¹	27.4 (1.30)	18.5 (1.20)	31.8 (1.41)	11.0 (0.91)	11.2 (0.85)	100.0
Movement therapies ⁴	74.4 (2.88)	14.9 (2.52)	7.0 (1.64)	†	*2.7 (0.86)	100.0
Mind-body therapies						
Biofeedback ¹	58.5 (11.95)	†	†	†	*23.1 (11.04)	100.0
Relaxation techniques ⁵	71.6 (3.29)	9.6 (2.22)	*7.2 (2.28)	*2.7 (1.14)	8.9 (1.79)	100.0
Hypnosis ¹	38.9 (8.31)	*11.9 (5.28)	*16.1 (7.59)	†	30.6 (8.04)	100.0
Energy-healing therapy ¹	46.3 (4.62)	13.3 (3.42)	15.7 (3.50)	*7.6 (2.94)	17.0 (3.82)	100.0

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and less than or equal to 50% and do not meet the standards of reliability or precision.

† Estimates with a relative standard error greater than 50% are indicated with a dagger, but are not shown.

– Quantity zero.

¹ Estimates are based on the question, “On average, how much did you pay out-of-pocket for each visit to a practitioner for {fill in therapy}?”

² Traditional healers include Curandero, Espiritista, Hierbero or Yerbero, Shaman, Botanica, Native American Healer/Medicine Man, and Sobador. Estimates are based on the question, “On average, how much did you pay out-of-pocket for each visit to a {fill in traditional healer}?”

³ Diet-based therapies include vegetarian diet, macrobiotic diet, Atkins diet, Pritikin diet, Ornish diet, Zone diet, and South Beach diet.

⁴ Movement therapies include Feldenkrais, Alexander technique, Pilates, and Trager Psychophysical Integration. Estimates are based on the question, “On average, how much did you pay out-of-pocket for each visit to a practitioner or teacher for {fill in movement therapy}?”

⁵ Relaxation techniques include meditation, guided imagery, progressive relaxation, and deep-breathing exercises. Estimates are based on the question, “On average, how much did you pay out-of-pocket for each visit to a practitioner or to take a class for {fill in relaxation technique}?”

NOTES: The denominators for statistics shown exclude persons with unknown complementary and alternative medicine information. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2007.

Table 4. Frequencies of persons aged 18 years and over who purchased selected complementary and alternative medicine therapies or materials, total purchases per year, and total out-of-pocket costs per year; and median (with 95% confidence interval) number of purchases per person, median out-of-pocket costs per person, and median out-of-pocket cost per purchase, by type of therapy: United States, 2007

Therapy	Purchases of a therapy or materials					
	Total persons	Total number of purchases per year	Total out-of-pocket costs per year (dollars)	Number of purchases per person	Out-of-pocket costs per person (dollars)	Out-of-pocket costs per purchase (dollars)
	Number (in thousands)			Median (95% confidence interval)		
Nonvitamin, nonmineral, natural products ¹	24,905	438,094	14,824,409	5.41 (5.16– 5.65)	176.77 (150.52–185.09)	19.18 (18.12–20.27)
Homeopathic medicine ²	3,326	69,300	2,944,215	1.58 (1.20– 1.97)	37.99 (28.66– 53.08)	15.28 (14.30–18.92)
Yoga, tai chi, and qigong ³	5,981	327,207	4,065,964	24.90 (16.94–31.39)	*49.43 (16.22– 97.16)	4.37 (1.39– 5.64)
Relaxation techniques ⁴	6,442	...	187,772	...	18.30 (14.89– 18.78)	...

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and less than or equal to 50% and do not meet the standards of reliability or precision.

... Category not applicable.

¹Estimates are based on the questions, "About how often do you buy herbal supplements?" and "About how much did you spend the last time you bought herbal supplements?"

²Estimates are based on the questions, "About how often do you buy homeopathic medicine?" and "About how much did you spend the last time you bought homeopathic medicine?"

³Estimates are based on the questions, "DURING THE PAST 12 MONTHS, on average, how often did you take a class or in some way receive formal training for (fill in yoga, tai chi, or qi gong)?" and "On average, how much did you pay out-of-pocket for each class or other formal training for (fill in yoga, tai chi, or qi gong)?"

⁴Relaxation techniques include meditation, guided imagery, progressive relaxation, and deep-breathing exercises. Estimates are based on the questions, "Did you buy a self-help book or other materials to learn about (fill relaxation technique used most)?" and "How much did you pay for these materials?"

NOTES: The estimates shown exclude persons with unknown complementary and alternative medicine information. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2007.

Table 5. Percent distributions (with standard errors) of costs for therapy or materials, for persons aged 18 years and over who purchased that type of therapy or materials, by therapy: United States, 2007

Therapy	Purchased therapy costs (dollars)						Total
	Less than 15	15–29	30–59	60–89	90–119	120 or more	
	Percent distribution (standard error)						
Nonvitamin, nonmineral, natural products ¹	26.5 (1.02)	29.4 (1.12)	25.0 (1.02)	9.3 (0.64)	4.4 (0.44)	5.4 (0.52)	100.0
Homeopathic medicine ²	40.1 (3.58)	30.1 (3.24)	19.8 (2.54)	*3.5 (1.14)	*3.0 (1.12)	*3.4 (1.16)	100.0
Yoga, tai chi, and qigong ³	75.2 (2.39)	11.9 (1.64)	8.8 (1.69)	*1.3 (0.52)	*1.3 (0.47)	*1.4 (0.50)	100.0
Relaxation techniques ⁴	36.0 (2.28)	38.8 (2.44)	14.8 (1.79)	*2.0 (0.62)	3.7 (0.92)	4.7 (0.98)	100.0

* Estimates preceded by an asterisk have a relative standard error of greater than 30% and less than or equal to 50% and do not meet the standards of reliability or precision.

¹Estimates are based on the question, "About how much did you spend the last time you bought herbal supplements?"

²Estimates are based on the question, "About how much did you spend the last time you bought homeopathic medicine?"

³Estimates are based on the question, "On average, how much did you pay out-of-pocket for each class or other formal training for (fill in yoga, tai chi, or qi gong)?"

⁴Relaxation techniques include meditation, guided imagery, progressive relaxation, and deep-breathing exercises. Estimates are based on the questions, "Did you buy a self-help book or other materials to learn about (fill relaxation technique used most)?" and "How much did you pay for these materials?"

NOTES: The denominators for statistics shown exclude persons with unknown complementary and alternative medicine information. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2007.

Technical Notes

Sample design

The National Health Interview Survey (NHIS) is a cross-sectional household interview survey of the U.S. civilian, noninstitutionalized population. Data are collected continuously throughout the year in all 50 states and the District of Columbia. NHIS uses a multistage, clustered sample design to collect data on a variety of health indicators. Information on basic health topics is collected for all household members, if necessary by proxy from one adult family member. Additional information is collected from one randomly selected adult and one randomly selected child in each family. Self-response is required for the NHIS Sample Adult Questionnaire except in rare cases where sample adults are physically or mentally incapable of responding for themselves. Interviews are conducted in the home using computer-assisted personal interviews, or CAPI, with telephone interviewing permitted for follow-up, if necessary.

Starting in 2006, the sample design included Asian persons in the NHIS oversampling of minority populations; previously, only households with black and Hispanic persons were oversampled. The sample adult selection process was also revised in 2006 so that when black, Hispanic, or Asian persons aged 65 years or older were present, they had an increased chance of being selected as the sample adult.

Response rates

In 2007, NHIS interviews were completed in 29,266 households, which yielded 75,764 persons in 29,915 families; the household response rate was 87.1%. The sample adult questionnaire was completed by 23,393 persons aged 18 years and over. The final response rate (which takes into account household and family nonresponse) for the 2007 sample adult file was 67.8%. Procedures used in calculating response rates are described in detail in Appendix I of the Survey Description, NHIS data files (5).

Item nonresponse

For the 2007 complementary and alternative medicine (CAM) items, nonresponse ranged from 0.0% to 10.7%, with nonresponse for most items being less than 5.0%. The denominators for statistics shown in tables exclude persons with unknown CAM information for a given table. Among the 23,393 interviewed sample adult respondents in the 2007 NHIS, 610 adults were missing data for all of the CAM items.

Calculation of estimates

All estimates and associated standard errors shown in this report were generated using SUDAAN, a software package designed to account for a complex sample design such as that of NHIS (6). All estimates for adults were weighted, using the sample adult record weight, to represent the U.S. civilian, noninstitutionalized population aged 18 years and over.

For this analysis, the number of visits to a CAM provider was calculated using the midpoint of the interval containing the number of visits. These intervals were 2–5 times, 6–10 times, 11–15 times, and 16–20 times. For response categories of only “one time” and “more than 20 times,” the values of 1 and 21, respectively, were used. To estimate the out-of-pocket costs per visit and the costs for purchasing homeopathic medicine, relaxation technique materials, and yoga, tai chi, and qigong classes, the continuous responses of \$0–\$499 were retained and the response of “\$500 or more” was treated as \$500. To estimate how often nonvitamin, nonmineral, natural products and homeopathic medicine were purchased, the respondent’s original answer of times per day, week, or month was converted into times per year. The number of times a person took a yoga, tai chi, or qigong class was calculated by using the midpoint of the interval containing the number of times the person took a class. These intervals were 2–11 times per year, 2–3 times per month, 2–3 times per week, and 4–6 times per week. Responses of daily,

times per week, and times per month were converted into times per year. Based on prior cognitive testing results of the Complementary and Alternative Medicine Supplement of the 2007 NHIS (12), few respondents report buying supplements as often as daily. Responses indicating purchases much more than 365 times per year were therefore excluded from the analysis as presumed errors. The question-and-response categories on which these recodes are based can be found in the 2007 NHIS Sample Adult Complementary and Alternative Medicine Questionnaire at: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2007/English/qalthealt.pdf. Persons with unknown CAM information are excluded from the analysis.

Relative standard error

Estimates with a relative standard error of more than 30% but less than or equal to 50% are identified with an asterisk (*). Estimates with a relative standard error of greater than 50% are indicated with a dagger (†) and are not shown. The relative standard errors are calculated as:

Relative standard error (as a percentage) = (SE/Est) 100,

where SE is the standard error of the estimate and Est is the estimate.

Definition of terms

These definitions were used in the 2007 NHIS and may not reflect existing scientific evidence on safety, efficacy, or possible mechanisms of action.

Acupuncture—A family of procedures involving stimulation of anatomical points on the body by a variety of techniques. American practices of acupuncture incorporate medical traditions from China, Japan, Korea, and other countries. The acupuncture technique that has been most studied scientifically involves penetrating the skin with thin, solid, metallic needles that are manipulated by the hands or by electrical stimulation.

Alexander technique—A movement therapy that uses guidance and

education on ways to improve posture and movement. The intent is to teach a person how to use muscles more efficiently to improve the overall functioning of the body. Examples of the Alexander technique as CAM are using it to treat low-back pain and the symptoms of Parkinson's disease.

Alternative provider or practitioner—Someone knowledgeable about a specific alternative health practice who provides care or gives advice about its use, and who usually receives payment for his or her services. For some practices, the provider may have received formalized training and have been certified by a licensing board or related professional association. For example, a practitioner of biofeedback (biofeedback therapist) usually has received training in psychology and physiology, and may be certified by the Biofeedback Certification Institute of America.

Atkins diet—A diet emphasizing a drastic reduction in the daily intake of carbohydrates (40 grams or less), countered by an increase in protein and fat.

Ayurveda—A system of medicine that originated in India several thousand years ago. In the United States, Ayurveda is considered a type of CAM and a whole medical system. As with other such systems, it is based on theories of health and illness and on ways to prevent, manage, or treat health problems. Ayurveda aims to integrate and balance the body, mind, and spirit; some view it as "holistic." This balance is believed to lead to contentment and health and to help prevent illness. However, Ayurveda also proposes treatments for specific health problems, both physical and mental. A chief aim of Ayurvedic practices is to cleanse the body of substances that can cause disease, in the belief that this helps to re-establish harmony and balance.

Biofeedback—A method that uses simple electronic devices to teach clients how to consciously regulate bodily functions, such as breathing, heart rate, and blood pressure, to improve overall health. Biofeedback is used to reduce stress, eliminate headaches, recondition

injured muscles, control asthmatic attacks, and relieve pain.

Botanica—A traditional healer who supplies healing products, sometimes associated with spiritual interventions.

CAM practitioner—Someone knowledgeable about a specific CAM health therapy who provides care or gives advice about its use.

Chelation therapy—A chemical process in which a substance is used to bind molecules, such as metals or minerals, and hold them tightly so that they can be removed from a system, such as the body. In medicine, chelation has been scientifically proven to rid the body of excess or toxic metals. For example, a person who has lead poisoning may be given chelation therapy to bind and remove excess lead from the body before it can cause damage.

Chiropractic manipulation—A form of health care that focuses on the relationship between the body's structure, primarily the spine, and its function. Doctors of chiropractic, who are also called chiropractors or chiropractic physicians, use a type of hands-on therapy called manipulation (or adjustment) as their core clinical procedure.

Complementary and alternative medicine (CAM)—Therapies not usually taught in U.S. medical schools or generally available in U.S. hospitals. CAM therapies include a broad range of practices and beliefs such as acupuncture, chiropractic care, relaxation techniques, massage therapy, and herbal remedies. They are defined by the National Center for Complementary and Alternative Medicine as a group of diverse medical and health care systems, practices, and products not presently considered to be part of conventional medicine.

Curandero—A type of traditional folk healer. Originally found in Latin America, Curanderos specialize in treating illness through the use of supernatural forces, herbal remedies, and other natural medicines.

Deep-breathing exercises—Exercises involving slow and deep inhalation through the nose, usually to a count of 10, followed by slow and

complete exhalation for a similar count. The process may be repeated 5 to 10 times, several times a day.

Energy-healing therapy—The channeling of healing energy through the hands of a practitioner into the client's body to restore a normal energy balance and, therefore, health. Energy healing therapy has been used to treat a wide variety of ailments and health problems, and is often used in conjunction with other alternative and conventional medical treatments.

Espiritista—A traditional healer who assesses a patient's condition and recommends herbs and religious amulets to improve physical or mental health or to help overcome a personal problem.

Feldenkrais—A movement therapy that uses a method of education in physical coordination and movement. Practitioners use verbal guidance and light touch to teach the method through one-on-one lessons and group classes. The intent is to help the person become more aware of how the body moves through space and to improve physical functioning.

Guided imagery—A series of relaxation techniques followed by the visualization of detailed images, usually calm and peaceful in nature. When used in treatment, a person is taught to visualize his or her body free of the specific problem or condition. Sessions are typically 20 to 30 minutes in length and may be practiced several times a week.

Hierbero—A traditional healer or practitioner with knowledge of the medicinal qualities of plants. Also known as a yerbero.

Homeopathy—A system of medical practices based on the theory that any substance that can produce symptoms of disease or illness in a healthy person can cure those symptoms in a sick person. For example, someone suffering from insomnia may be given a homeopathic dose of coffee. Administered in diluted form, homeopathic remedies are derived from many natural sources, including plants, metals, and minerals.

Hypnosis—An altered state of consciousness characterized by increased

responsiveness to suggestion. The hypnotic state is attained by first relaxing the body, then shifting attention toward a narrow range of objects or ideas as suggested by the hypnotist or hypnotherapist. The procedure is used to effect positive changes and to treat numerous health conditions including ulcers, chronic pain, respiratory ailments, stress, and headaches.

Macrobiotic diet—A diet low in fat, emphasizing whole grains and vegetables and restricting the intake of fluids. Of particular importance is the consumption of fresh, nonprocessed foods.

Massage—Therapy involving the manipulation of muscle and connective tissue to enhance function of those tissues and promote relaxation and well-being.

Meditation—A group of techniques, most of which started in Eastern religious or spiritual traditions, in which a person learns to focus his or her attention and suspend the stream of thoughts that normally occupy the mind. This practice is believed to result in a state of greater physical relaxation, mental calmness, and psychological balance. Practicing meditation can change how a person relates to the flow of emotions and thoughts in the mind.

Native American Healer/Medicine Man—A traditional healer who uses information from the “spirit world” in order to benefit the community. People see Native American healers for a variety of reasons, especially to find relief or a cure from illness or to find spiritual guidance.

Naturopathy—An alternative medical system that proposes that a healing power in the body establishes, maintains, and restores health. Practitioners work with the patient with a goal of supporting this power through treatments such as nutrition and lifestyle counseling, dietary supplements, medicinal plants, exercise, homeopathy, and treatments from traditional Chinese medicine.

Nonvitamin, nonmineral, natural products—Products taken orally that contain a dietary ingredient intended to supplement the diet with other than vitamins and minerals. Examples

include herbs or herbal medicine (as single herbs or mixtures), other botanical products such as soy or flax, and dietary substances such as enzymes and glandular material. Among the most popular are echinacea, ginkgo biloba, ginseng, feverfew, garlic, kava kava, and saw palmetto. Garlic, for example, has been used to treat fevers, sore throats, digestive ailments, hardening of the arteries, and other health problems and conditions.

Ornish diet—A high-fiber, low-fat vegetarian diet that promotes weight loss and health by controlling what is eaten, not by restricting the intake of calories. Fruits, beans, grains, and vegetables can be eaten at all meals, while nonfat dairy products such as skim milk, nonfat cheeses, and egg whites are to be consumed in moderation. Products such as oils, avocados, nuts and seeds, and meats of all kinds are avoided.

Osteopathic manipulation—A full-body system of hands-on techniques to alleviate pain, restore function, and promote health and well-being.

Pilates—A movement therapy that uses a method of physical exercise to strengthen and build control of muscles, especially those used for posture. Awareness of breathing and precise control of movements are integral components of Pilates. Special equipment, if available, is often used.

Pritikin diet—A low-fat diet that allows meat but emphasizes the consumption of foods with a large volume of fiber and water, including many vegetables, fruits, beans, and natural, unprocessed grains. Also known as *Pritikin Principle*.

Progressive relaxation—Techniques used to relieve tension and stress by systematically tensing and relaxing successive muscle groups.

Qigong—An ancient Chinese discipline combining the use of gentle physical movements, mental focus, and deep breathing directed toward specific parts of the body. Performed in repetitions, the exercises are normally performed two or more times a week for 30 minutes at a time.

Self-care therapies—Forms of CAM that a person can perform alone, even if

training is required. These techniques can be self-taught with the aid of books or instructional videos, or learned from an experienced practitioner. Once the techniques are learned, a person requires no additional outside assistance unless improvement of skills is desired.

Shaman—A traditional healer who is said to act as a medium between the invisible spiritual world and the physical world. Most gain knowledge through contact with the spiritual world and use the information to perform tasks such as divination, influencing natural events, and healing the sick or injured.

Sobador—A traditional healer who uses massage and rub techniques in order to treat patients.

South Beach diet—A diet that distinguishes between “good” and “bad” carbohydrates and fats. “Good” carbohydrates are those that are digested relatively slowly, and “bad” fats include saturated and trans fats. Although the program does not require a person to count calories or limit portions, dieters are encouraged to eat whole-grain foods and an abundant amount of vegetables.

Tai chi—A mind-body practice that originated in China as a martial art. A person doing tai chi moves his or her body slowly and gently, while breathing deeply and meditating; the practice is sometimes called “moving meditation.” Many practitioners believe that tai chi helps the flow throughout the body of a proposed vital energy called “qi.” A person practicing tai chi moves his or her body in a slow, relaxed, and graceful series of movements. The movements, performed alone or in a group, make up what are called forms, or routines.

Traditional healer—Someone who employs any one of a number of ancient medical practices that are based on indigenous theories, beliefs, and experiences handed down from generation to generation. The methods employed by each type of traditional healer have evolved to reflect the different philosophical backgrounds and cultural origins of the healer.

Trager Psychophysical Integration—A movement therapy in which practitioners apply a series of gentle, rhythmic rocking movements to

the joints. Practitioners also teach physical and mental self-care exercises to reinforce the proper movement of the body. The intent is to release physical tension and increase the body's range of motion. An example of Trager Psychophysical Integration as CAM is using it to treat chronic headaches.

Vegetarian diets—Diets that are totally devoid of meat, red or white. However, numerous variations are followed on the nonmeat theme. For example, some vegetarian diets are restricted to plant products only, while others may include eggs and dairy products. Another variation limits consumption to raw fruit, sometimes supplemented with nuts and vegetables. Others prohibit alcohol, sugar, caffeine, or processed foods.

Yerbera—See *hierbero*.

Yoga—A practice that combines breathing exercises, physical postures, and meditation to calm the nervous system and balance body, mind, and spirit. Usually performed in classes, sessions are conducted once a week or more and roughly last 45 minutes.

Zone diet—A diet in which each meal consists of a small amount of low-fat protein, fats, and fiber-rich fruits and vegetables. Its basic goal is to alter the body's metabolism by controlling the production of key hormones.

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