

information about people, things, and ideas, intellectual curiosity and creativity are fundamental personal traits. The ability to think logically and methodically is important to a political scientist comparing, for example, the merits of various forms of government. Objectivity, open-mindedness, and systematic work habits are important in all kinds of social science research. Perseverance is essential for an anthropologist, who might spend years accumulating artifacts from an ancient civilization. Excellent written and oral communication skills are essential for all these professionals.

### Job Outlook

Overall employment of social scientists is expected to grow about as fast as the average for all occupations through 2010. Prospects are best for those with advanced degrees, and usually are better in disciplines such as sociology, anthropology, and archaeology, which offer more opportunities in nonacademic settings.

Government agencies, social service organizations, marketing, research and consulting firms, and a wide range of businesses seek social science graduates, although often in jobs with titles unrelated to their academic discipline. Social scientists will face stiff competition for academic positions. However, the growing importance and popularity of social science subjects in secondary schools is strengthening the demand for social science teachers at that level.

Candidates seeking positions as social scientists can expect to encounter competition in many areas of social science. Some social science graduates, however, will find good employment opportunities in areas outside traditional social science, often in related jobs that require good research, communication, and quantitative skills.

### Earnings

Median annual earnings of all other social scientists (excluding economists, psychologists, and urban and regional planners) were \$48,330 in 2000. Anthropologists and archeologists had median annual earnings of \$36,040; geographers, \$46,690; historians, \$39,860; political scientists, \$81,040; and sociologists, \$45,670.

In the Federal Government, social scientists with a bachelor's degree and no experience could start at \$21,900 or \$27,200 a year in 2001, depending on their college records. Those with a master's degree could start at \$33,300, and those with a Ph.D. degree could begin at \$40,200, while some individuals with experience and an

advanced degree could start at \$48,200. Beginning salaries were slightly higher in selected areas of the country where the prevailing local pay level was higher.

### Related Occupations

A number of occupations requiring training and personal qualities similar to those of social scientists are covered elsewhere in the *Handbook*. These include computer programmers; computer software engineers; counselors; lawyers; mathematicians; news analysts, reporters, and correspondents; postsecondary teachers; social workers; statisticians; and systems analysts.

### Sources of Additional Information

Detailed information about economists and market and survey researchers, psychologists, and urban and regional planners is presented elsewhere in the *Handbook*.

For information about careers in anthropology, contact:

► The American Anthropological Association, 4350 N. Fairfax Dr., Suite 640, Arlington, VA 22203-1620. Internet: <http://www.aaanet.org>

For information about careers in archaeology, contact:

► Society for American Archaeology, 900 2nd St. NE., Suite 12, Washington, DC 20002-3557. Internet: <http://www.saa.org>

► Archaeological Institute of America, 656 Beacon St., Boston, MA 02215-2006. Internet: <http://www.archaeological.org>

For information about careers in geography, contact:

► Association of American Geographers, 1710 16th St. NW., Washington, DC 20009-3198. Internet: <http://www.aag.org>

Information on careers for historians is available from:

► American Historical Association, 400 A St. SE., Washington, DC 20003-3889. Internet: <http://www.theaha.org>

► Organization of American Historians, 112 North Bryan Ave., Bloomington, IN 47408-4199. Internet: <http://www.oah.org>

► American Association for State and Local History, 1717 Church St., Nashville, TN 37203-2991. Internet: <http://www.aaslh.org>

For information about careers in political science, contact:

► National Association of Schools of Public Affairs and Administration, 1120 G St. NW., Suite 730, Washington, DC 20005-3869. Internet: <http://www.nasppaa.org>

Information about careers in sociology is available from:

► American Sociological Association, 1307 New York Ave. NW., Suite 700, Washington, DC 20005-4712. Internet: <http://www.asanet.org>

For information about careers in demography, contact:

► Population Association of America, 8630 Fenton St., Suite 722, Silver Spring, MD 20910-3812. Internet: <http://www.popassoc.org>

---

## Health Diagnosing and Treating Practitioners

---

### Chiropractors

(O\*NET 29-1011.00)

#### Significant Points

- Employment of chiropractors is expected to increase faster than average, and job prospects should be good.
- Chiropractic care of back, neck, extremities, and other joint damage has become more accepted as a result of recent research and changing attitudes.
- In chiropractic, as in other types of independent practice, earnings are relatively low in the beginning, but increase as the practice grows.

#### Nature of the Work

Chiropractors, also known as *doctors of chiropractic* or *chiropractic physicians*, diagnose and treat patients whose health problems are associated with the body's muscular, nervous, and skeletal systems, especially the spine. Chiropractors believe interference with these systems impairs normal functions and lowers resistance to disease. They also hold that spinal or vertebral dysfunction alters many important body functions by affecting the nervous system, and that skeletal imbalance through joint or articular dysfunction, especially in the spine, can cause pain.

The chiropractic approach to healthcare is holistic, stressing the patient's overall health and wellness. It recognizes that many factors affect health, including exercise, diet, rest, environment, and heredity. Chiropractors provide natural, drugless, nonsurgical health treatments, and rely on the body's inherent recuperative abilities.

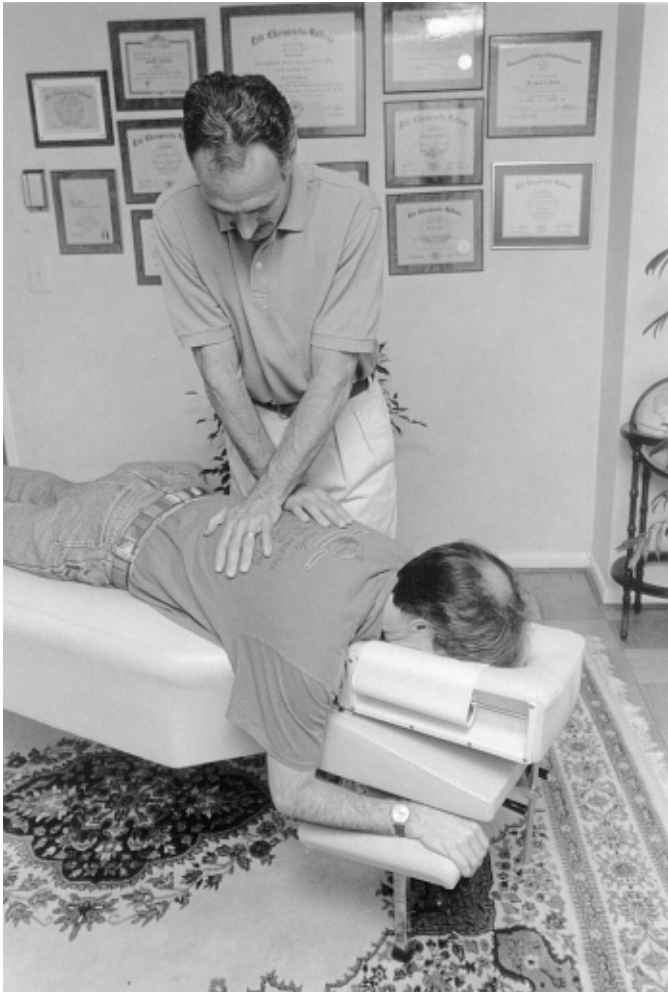
They also recommend lifestyle changes—in eating, exercise, and sleeping habits, for example—to their patients. When appropriate, chiropractors consult with and refer patients to other health practitioners.

Like other health practitioners, chiropractors follow a standard routine to secure the information needed for diagnosis and treatment. They take the patient's medical history, conduct physical, neurological, and orthopedic examinations, and may order laboratory tests. X rays and other diagnostic images are important tools because of the emphasis on the spine and its proper function. Chiropractors also employ a postural and spinal analysis common to chiropractic diagnosis.

In cases in which difficulties can be traced to involvement of musculoskeletal structures, chiropractors manually adjust the spinal column. Some chiropractors use water, light, massage, ultrasound, electric, and heat therapy. They also may apply supports such as straps, tapes, and braces. Chiropractors counsel patients about wellness concepts such as nutrition, exercise, lifestyle changes, and stress management, but do not prescribe drugs or perform surgery.

Some chiropractors specialize in sports injuries, neurology, orthopedics, pediatrics, nutrition, internal disorders, or diagnostic imaging.

Many chiropractors are solo or group practitioners who also have the administrative responsibilities of running a practice. In larger offices, chiropractors delegate these tasks to office managers and chiropractic assistants. Chiropractors in private practice



*A chiropractor manually adjusts the spine to relieve pressure.*

are responsible for developing a patient base, hiring employees, and keeping records.

### **Working Conditions**

Chiropractors work in clean, comfortable offices. The average work-week is about 40 hours, although longer hours are not uncommon. Solo practitioners set their own hours, but may work evenings or weekends to accommodate patients.

Chiropractors, like other health practitioners, are sometimes on their feet for long periods. Chiropractors who take x rays must employ appropriate precautions against the dangers of repeated exposure to radiation.

### **Employment**

Chiropractors held about 50,000 jobs in 2000. Most chiropractors are in solo practice, although some are in group practice or work for other chiropractors. A small number teach, conduct research at chiropractic institutions, or work in hospitals and clinics.

Many chiropractors are located in small communities. There are geographic imbalances in the distribution of chiropractors, in part because many establish practices close to chiropractic institutions.

### **Training, Other Qualifications, and Advancement**

All States and the District of Columbia regulate the practice of chiropractic and grant licenses to chiropractors who meet educational and examination requirements established by the State. Chiropractors can only practice in States where they are licensed. Some States have agreements permitting chiropractors licensed in one State to obtain a license in another without further examination, provided that educational, examination, and practice credentials meet State specifications.

Most State boards require at least 2 years of undergraduate education, and an increasing number require a 4-year bachelor's degree. All boards require completion of a 4-year chiropractic college course at an accredited program leading to the Doctor of Chiropractic degree.

For licensure, most State boards recognize either all or part of the four-part test administered by the National Board of Chiropractic Examiners. State examinations may supplement the National Board tests, depending on State requirements.

To maintain licensure, almost all States require completion of a specified number of hours of continuing education each year. Continuing education programs are offered by accredited chiropractic programs and institutions, and chiropractic associations. Specialty councils within some chiropractic associations also offer programs leading to clinical specialty certification, called "diplomat" certification, in areas such as orthopedics, neurology, sports injuries, occupational and industrial health, nutrition, diagnostic imaging, thermography, and internal disorders.

In 2000, there were 16 chiropractic programs and institutions in the United States accredited by the Council on Chiropractic Education. All required applicants to have at least 60 semester hours of undergraduate study leading toward a bachelor's degree, including courses in English, the social sciences or humanities, organic and inorganic chemistry, biology, physics, and psychology. Many applicants have a bachelor's degree, which may eventually become the minimum entry requirement. Several chiropractic colleges offer prechiropractic study, as well as a bachelor's degree program. Recognition of prechiropractic education offered by chiropractic colleges varies among the State boards.

During the first 2 years, most chiropractic programs emphasize classroom and laboratory work in basic science subjects such as anatomy, physiology, public health, microbiology, pathology, and biochemistry. The last 2 years stress courses in manipulation and

spinal adjustments, and provide clinical experience in physical and laboratory diagnosis, neurology, orthopedics, geriatrics, physiotherapy, and nutrition. Chiropractic programs and institutions grant the degree of Doctor of Chiropractic (DC).

Chiropractic requires keen observation to detect physical abnormalities. It also takes considerable hand dexterity to perform adjustments, but not unusual strength or endurance. Chiropractors should be able to work independently and handle responsibility. As in other health-related occupations, empathy, understanding, and the desire to help others are good qualities for dealing effectively with patients.

Newly licensed chiropractors can set up a new practice, purchase an established one, or enter into partnership with an established practitioner. They also may take a salaried position with an established chiropractor, a group practice, or a healthcare facility.

### Job Outlook

Job prospects are expected to be good for persons who enter the practice of chiropractic. Employment of chiropractors is expected to grow faster than the average for all occupations through the year 2010 as consumer demand for alternative healthcare grows. Chiropractors emphasize the importance of healthy lifestyles and do not prescribe drugs or perform surgery. As a result, chiropractic care is appealing to many health-conscious Americans. Chiropractic treatment of back, neck, extremities, and other joint damage has become more accepted as a result of recent research and changing attitudes about alternative healthcare practices. The rapidly expanding older population, with their increased likelihood of mechanical and structural problems, also will increase demand.

Demand for chiropractic treatment is also related to the ability of patients to pay, either directly or through health insurance. Although more insurance plans now cover chiropractic services, the extent of such coverage varies among plans. Increasingly, chiropractors must educate communities about the benefits of chiropractic care in order to establish a successful practice.

In this occupation, replacement needs arise almost entirely from retirements. Chiropractors usually remain in the occupation until they retire; few transfer to other occupations. Establishing a new practice will be easiest in areas with a low concentration of chiropractors.

### Earnings

Median annual earnings of salaried chiropractors were \$67,030 in 2000. The middle 50 percent earned between \$44,030 and \$105,520 a year.

Self-employed chiropractors usually earn more than salaried chiropractors. According to the American Chiropractic Association, in 2000, the average income for all chiropractors, including the self-employed, was about \$81,500 after expenses. In chiropractic, as in other types of independent practice, earnings are relatively low in the beginning, and increase as the practice grows. Earnings also are influenced by the characteristics and qualifications of the practitioner, and geographic location. Self-employed chiropractors must provide for their own health insurance and retirement.

### Related Occupations

Chiropractors treat and work to prevent bodily disorders and injuries. So do dentists, occupational therapists, optometrists, physical therapists, physicians and surgeons, podiatrists, and veterinarians.

### Sources of Additional Information

General information on chiropractic as a career is available from:

- ▶ American Chiropractic Association, 1701 Clarendon Blvd., Arlington, VA 22209. Internet: <http://www.amerchiro.org>

- ▶ International Chiropractors Association, 1110 North Glebe Rd., Suite 1000, Arlington, VA 22201. Internet: <http://www.chiropractic.org>
- ▶ World Chiropractic Alliance, 2950 N. Dobson Rd., Suite 1, Chandler, AZ 85224-1802. Internet: <http://www.worldchiropracticalliance.org>
- ▶ Dynamic Chiropractic, P.O. Box 40109, Huntington, CA 92605. Internet: <http://www.chiroweb.com>

For a list of chiropractic programs and institutions, as well as general information on chiropractic education, contact:

- ▶ Council on Chiropractic Education, 7975 North Hayden Rd., Suite A-210, Scottsdale, AZ 85258.

For information on State education and licensure requirements, contact:

- ▶ Federation of Chiropractic Licensing Boards, 901 54th Ave., Suite 101, Greeley, CO 80634. Internet: <http://www.fclb.org/fclb>

For information on requirements for admission to a specific chiropractic college, as well as scholarship and loan information, contact the admissions office of the individual college.

## Dentists

(O\*NET 29-1021.00, 29-1022.00, 29-1023.00, 29-1024.00, 29-1029.99)

### Significant Points

- Most dentists have at least 8 years of education beyond high school.
- Although employment growth will provide some job opportunities, most jobs will result from the need to replace the large number of dentists projected to retire.
- Dental care will increasingly focus on prevention, which involves teaching people how better to care for their teeth.

### Nature of the Work

Dentists diagnose, prevent, and treat teeth and tissue problems. They remove decay, fill cavities, examine x rays, place protective plastic sealants on children's teeth, straighten teeth, and repair fractured teeth. They also perform corrective surgery on gums and supporting bones to treat gum diseases. Dentists extract teeth and make models and measurements for dentures to replace missing teeth. They provide instruction on diet, brushing, flossing, use of fluorides, and other aspects of dental care, as well. They also administer anesthetics and write prescriptions for antibiotics and other medications.

Dentists use a variety of equipment, including x-ray machines, drills, and instruments such as mouth mirrors, probes, forceps, brushes, and scalpels. They wear masks, gloves, and safety glasses to protect themselves and their patients from infectious diseases.

Dentists in private practice oversee a variety of administrative tasks, including bookkeeping, and buying equipment and supplies. They may employ and supervise dental hygienists, dental assistants, dental laboratory technicians, and receptionists. (These occupations are described elsewhere in the *Handbook*.)

Most dentists are general practitioners, handling a variety of dental needs. Other dentists practice in 1 of 9 specialty areas. *Orthodontists*, the largest group of specialists, straighten teeth by applying pressure to the teeth with braces or retainers. The next largest group, *oral and maxillofacial surgeons*, operate on the mouth and jaws. The remainder may specialize as *pediatric dentists* (focusing on dentistry for children); *periodontists* (treating gums and bone supporting the teeth); *prosthodontists* (replacing missing teeth with permanent fixtures, such as crowns and bridges, or removable fixtures, such as dentures); *endodontists* (performing root canal