

Indicators, Trends, and Recommendations for Living a Longer, Healthier Life

Jannette Collins, MD, MEd

Radiology faculty members serve as role models to residents and medical students, potentially influencing the choices trainees make regarding their health. Resident work hours, program flexibility in work hours, food served at department functions, wellness programs offered by programs or the institutions in which they are housed, and subtle cues that reflect faculty values regarding personal and community health are examples of factors that potentially influence the choices made by trainees. There are many unanswered questions regarding the adequacy of training programs in promoting good health among their trainees. One purpose of this review is to lay the groundwork for research in how radiology training programs influence trainees' compliance with health recommendations. It focuses on physical activity, overweight and obesity, and related health concerns. It emphasizes the discouraging fact that the majority of American adults do not follow recommended guidelines for physical activity and diet, worker stress among American adults is high, 1 in 4 American adults have high blood pressure, and more than 20% have high levels of total cholesterol.

Key Words: Health recommendations, health trends, health indicators

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If you can find a path with no obstacles, it probably doesn't lead anywhere.

—Anonymous

The clearer your goal, the better your chance to succeed.

—Anonymous

The first wealth is health.

—Ralph Waldo Emerson

Healthy People 2010 is a program managed by the Office of Disease Prevention and Health Promotion of the US Department of Health and Human Services (DHHS) that challenges individuals, communities, and professionals to take specific steps to ensure that good health and long life are enjoyed by all [1]. It represents a broad collaborative effort that includes scientific expertise from the government, academia, and the private sector. The goals of the program are to increase the quality and years of healthy life and eliminate health disparities. Life expectancy is the average number of years people born in a given year are expected to live on the basis of a set of age-specific death rates. At the beginning of the

20th century, life expectancy at birth was 47.3 years. Today, the average life expectancy at birth is nearly 77 years [2]. On the basis of today's age-specific death rates, individuals aged 65 years can be expected to live an average of 18 or more years, for a total of 83 years. Those aged 75 years can be expected to live an average of 11 more years, for a total of 86 years. Years of healthy life in 1996 were estimated at 64.2 [2]. The difference between life expectancy and years of healthy life reflects the average amount of time spent in less than optimal health because of chronic or acute limitations.

The nation's progress in achieving the goals of Healthy People 2010 is being monitored through 467 objectives in 28 focus areas. Each objective has a target for specific improvements to be achieved by 2010. A list of 10 leading health indicators (Table 1) was selected on the basis of their ability to motivate action, the availability of data to measure progress, and their importance as public health issues. As a group, these indicators reflect the major health concerns in the United States at the beginning of the 21st century and serve as a link to the 467 objectives in Healthy People 2010 [3].

This review of general health recommendations is not targeted toward radiologists. Because of this, the reader might think the article is better suited for publication in a general medical journal. However, the information would be lost to many radiologists who do not read such

University of Wisconsin Medical School, Madison, Wisconsin.

Corresponding author and reprints: Jannette Collins, MD, MEd, University of Wisconsin Medical School, Department of Radiology, 600 Highland Avenue, E3/311 CSC, Madison, WI 53792-3252; e-mail: j.collins@hosp.wisc.edu.

Table 1. Healthy people 2010 leading health indicators

- Physical activity
- Overweight and obesity
- Tobacco use
- Substance abuse
- Responsible sexual behavior
- Mental health
- Injury and violence
- Environmental quality
- Immunization
- Access to health care

Source: Office of Disease Prevention and Health Promotion [3].

journals. One purpose of this review is to lay the groundwork for research in how radiology training programs influence trainees' compliance with health recommendations. Radiology faculty members serve as role models to residents and medical students, potentially influencing the choices trainees make regarding their health. Resident work hours, program flexibility in work hours, food served at department functions, wellness programs offered by programs or the institutions in which they are housed, and subtle cues that reflect faculty values regarding personal and community health are examples of factors that potentially influence the choices made by trainees. The influence that programs have on trainees' health habits has the potential to affect the culture of the practices trainees eventually join and to affect trainees' satisfaction with life long beyond residency. There are many unanswered questions regarding the adequacy of training programs in promoting good health among their trainees and faculty members. Informing both groups about recommended health guidelines is a first step in the process of answering these questions.

The topic of health is broad, as evidenced by the number of Healthy People 2010 objectives, and there are many health issues that could be covered in this review. For the purposes of narrowing the scope, this review focuses on two of the Healthy People 2010 indicators: physical activity and overweight and obesity, as well as diet and nutrition, lipid disorders, high blood pressure, and psychological distress, which represent important related health concerns. Following this, a discussion of workplace interventions emphasizes the importance of addressing these health concerns at the community as well as individual levels.

PHYSICAL ACTIVITY

Regular physical activity reduces people's risk for heart attack, colon cancer, diabetes, and high blood pressure and may reduce their risk for stroke. It also helps control

weight; contributes to healthy bones, muscles, and joints; reduces falls among older adults; helps relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications [4]. Regular physical activity is associated with lower death rates for adults of any age, even when only moderate levels of physical activity are performed [5]. It need not be strenuous to be beneficial; people of all ages benefit from moderate-intensity physical activity. The goals of Healthy People 2010 and the recommendations of the American College of Sports Medicine are to increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day or vigorous-intensity activities for at least 20 minutes per day, at least 3 days per week [5-7]. Moderate-intensity activity is described as any activity that causes small increases in breathing and heart rate and burns 3.5 to 7 calories per minute. Vigorous-intensity activity is described as any activity that causes large increases in breathing or heart rate and burns more than 7 calories per minute [8,9].

Overall fitness is made up of several components [10]. Cardiorespiratory endurance is the ability of the body's circulatory and respiratory systems to supply fuel during sustained physical activity. Optimal cardiorespiratory endurance requires activities that keep the heart rate elevated to a safe level for a sustained length of time, such as walking, swimming, or bicycling. Muscular strength is the ability of the muscle to exert force during an activity. The key to making muscles stronger is working them against resistance, such as by lifting weights. Children and adolescents need weight-bearing exercise for normal skeletal development, and adults need such exercise to achieve and maintain peak bone mass. Flexibility is the range of motion around a joint. Good flexibility in the joints can help prevent injuries through all stages of life. The US Department of Agriculture (USDA) recommendations for the general population include the achievement of physical fitness through cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance [11].

Despite the proven benefits of physical activity, more than 50% of US adults do not get enough physical activity to provide health benefits, and 24% are not active at all in their leisure time [4]. These statistics are based on a definition of leisure-time physical activity as participating in any physical activity or exercise, such as running, calisthenics, golf, gardening, or walking for exercise, other than that performed as part of a regular job, during the past month [12]. From the period January 2006 through June 2006, only 31.1% of US adults aged 18 years and older engaged in regular leisure-time physical activity [13]. The prevalence of leisure-time activity

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