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# Part B: Introduction

## Setting the Stage for Physical Activity Guidelines for Americans

The Department of Health and Human Services (HHS) is entrusted with a leadership position in the nation's government to promote, create, and maintain a healthy America, and the President's HealthierUS Initiative establishes a federal framework for wellness-related activities and programs. In May 2006, Secretary Michael O. Leavitt announced prevention as one of his top ten priority areas. The overarching agenda of the prevention priority is organized around the four major principles of the HealthierUS initiative:

- Eat a nutritious diet
- Be physically active
- Get your medical screenings
- Make healthy choices

On October 27, 2006, Secretary Leavitt announced plans for the development of federal *Physical Activity Guidelines for Americans* to be issued in 2008 (<http://www.hhs.gov/news/press/2006pres/20061026.html>). HHS is taking the opportunity to develop the first Physical Activity Guidelines for the nation to serve as the benchmark and single, authoritative voice for providing science-based guidance on physical activity for health promotion. These new, comprehensive guidelines will help promote a culture of wellness in the United States by providing essential and practical information to Americans on physical activity and related health benefits.

To help establish the scientific rationale for physical activity guidelines, HHS sponsored a workshop (October 23 – 24, 2006), organized by the Institute of Medicine, in which a panel of 30 scientists and practitioners reviewed the evidence relating habitual physical activity to various health outcomes, with special emphasis on the prevention of major chronic diseases ([http://www.nap.edu/catalog.php?record\\_id=11819](http://www.nap.edu/catalog.php?record_id=11819)). This overview of existing evidence indicated that frequent participation in physical activity was strongly linked to better health status throughout the life span. Given the high prevalence of sedentary behavior among Americans and the current epidemic of obesity and related diseases, the panel also concluded that federal physical activity guidelines were warranted.

## The Physical Activity Guidelines Advisory Committee

Following the announcement by the Secretary, nominations for potential members of a Physical Activity Guidelines Advisory Committee (PAGAC) were sought through a *Federal Register* Notice published in January 2007 (<http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/pdf/E7-842.pdf>). Prospective members of the Committee were expected to have knowledge of current scientific research in human physical activity and be respected and published experts in their fields; be familiar with the purpose, communication, and application of federal guidelines; and have demonstrated interest in the public's health and well-being through their research and educational endeavors. Expertise was sought in specialty areas related to physical activity, including health promotion and chronic disease prevention; bone, joint, and muscle health and performance; obesity and weight management; musculoskeletal injury and other adverse events; and applications to specific populations such as children, youth, and women during pregnancy and the postpartum period, older adults, persons with disabilities, and diverse races and ethnicities.

To the extent practicable, selection of committee members represented geographic distribution and took into account the needs of the diverse groups served by HHS. Appointments were made without discrimination on the basis of age; race and ethnicity; sex; sexual orientation; disability; or cultural, religious, or socioeconomic status. In February 2007, Secretary Leavitt appointed 13 members to the PAGAC, including a chair and vice chair. The Committee served without pay and worked under the regulations of the Federal Advisory Committee Act.

### Charge to the Committee

Secretary Leavitt's charge to the Committee was to "review existing scientific literature to identify where there is sufficient evidence to develop a comprehensive set of specific physical activity recommendations. The Committee is to prepare a report to the Secretary that documents scientific background and rationale for the 2008 edition of the *Physical Activity Guidelines for Americans*. The report will also identify areas where further scientific research is needed. The intent is to have physical activity recommendations for all Americans that will be tailored as necessary for specific subgroups of the population" (<http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/pdf/E7-842.pdf>).

### Committee Meetings

The committee held three 2-day meetings in Washington, DC, that were open to the public and announced in the *Federal Register*. The meetings took place on June 26-27, 2007;

December 6-7, 2007; and February 28-29, 2008. Meeting summaries are available at <http://www.health.gov/paguidelines>.

Oral comments from the public were presented at the second and third public meetings, and written comments were accepted throughout the tenure of the PAGAC. Written comments were shared with the Committee before the second and third meetings and as Committee members were drafting their final report. These comments are available for examination at the Office of Disease Prevention and Health Promotion, 1101 Wootton Parkway, Suite LL-100, Rockville, MD 20852.

## **Committee Organization and Work Process**

Soon after the PAGAC was convened, members decided that the work of reviewing the science would be best achieved by establishing subcommittees, each of which would review and interpret the literature for specific health outcomes and summarize their findings as a chapter in the report. The subcommittees, composed of Committee members and consultants, communicated by electronic mail and conference calls and held face-to-face meetings before the public Committee meetings. Each subcommittee was responsible for presenting to the full Committee the basis for its conclusions, responding to questions, and making changes if indicated. The conclusions in this report represent the consensus of the entire PAGAC.

Initially, the PAGAC formed 9 subcommittees, focused on the 9 health outcomes identified by the CDC (see below): all-cause mortality, cardiorespiratory health, metabolic health, energy balance, musculoskeletal health, functional health, cancer, mental health, and adverse events. At their first public meeting, members added two other subcommittees: youth and understudied populations (i.e., populations not covered in other chapters — persons with disabilities, women during pregnancy and the postpartum period, and races and ethnicities other than non-Hispanic white).

Each Committee member volunteered to chair one subcommittee and be a member of one or more other subcommittees. To assist in the review process, subcommittee chairs were authorized to select consultants who had scientific expertise in a specific area of the subcommittee's charge (consultants are listed at the beginning of the report).

## **A Systematic Review of the Evidence on Physical Activity and Health**

Immediately after Secretary Leavitt announced plans for the development of federal physical activity guidelines, staff of the Division of Nutrition, Physical Activity, and Obesity (DNPAO) at the Centers for Disease Control and Prevention's (CDC's) National Center for Chronic Disease Prevention and Health Promotion were assigned to develop a process to support the systematic review of the scientific literature relating physical activity to health. The staff developed a conceptual framework for the literature search and a process to

systematically abstract published articles and make these abstracts readily accessible to PAGAC members and consultants. The details of this search strategy and process are provided in **Part F: Scientific Literature Search Methodology**. The product resulting from this search and abstracting process is the *Physical Activity Guidelines for Americans* Scientific Database. CDC staff initially decided to abstract relevant articles published between January 1, 1995 and December 30, 2006. In June 2007, the PAGAC and CDC agreed to expand the abstracting process to include articles published between January 1 and August 10, 2007.

## **The Committee's Review of the Scientific Literature**

PAGAC members were instructed on and encouraged to use the *Physical Activity Guidelines for Americans* Scientific Database to identify articles that would be included in each subcommittee's systematic review of the literature. Also, as each subcommittee developed a plan to review and interpret the scientific data, it made arrangements with the CDC staff and PAGAC leadership for additional abstracting of articles that were central to their review. Because of limited time and resources available, additional abstracting was prioritized based on the importance and relevance of the outcome being addressed. Because not all the relevant literature could be abstracted by the CDC, subcommittees also were encouraged to consider using recent meta-analyses or systematic reviews for various biomarkers or risk factors that appear to be in the causal pathway between activity and a specific clinical outcome (e.g., hypertension or atherogenic lipoproteins for coronary heart disease). Subcommittees were instructed to carefully document in their chapters the literature search and review methods they used.

Following their literature review, each subcommittee drafted a chapter that summarized and synthesized the results of the review. These chapters were subsequently reviewed by at least 3 PAGAC members who were not members of the drafting subcommittee as well as selected consultants. All PAGAC members were encouraged to review all chapters.

## **Summarizing and Integrating the Science**

In addition to summarizing the evidence relating physical activity to individual health outcomes, one of the PAGAC's major goals was to integrate the scientific information on the relation of physical activity and health and to summarize it in a manner that could be used effectively by HHS personnel to develop the Physical Activity Guidelines and related statements.

For the final PAGAC meeting, each subcommittee chair was requested to prepare a brief summary of key findings from their chapter for discussion by PAGAC. Each subcommittee's summary report included information on the type and magnitude of evidence, the strength of the evidence, characteristics of the physical activity most likely to produce the outcome, any evidence of a dose-response association, and any evidence that being sedentary puts a person at increased risk. Selected PAGAC members then were asked

to integrate the main conclusions from these subcommittee reports under the headings of youth, adults, older adults, understudied populations, and adverse events. These summary conclusions were presented and discussed at the PAGAC meeting on February 29, 2008. The resulting summary of evidence and consensus statements about the relation of physical activity to health are provided in *Part E: Integration and Summary of the Science*.

## **Contents and Organization of the Physical Activity Guidelines Advisory Committee Report**

The report includes 3 major components. The first component provides essential background and synthesis information:

- *Part A: Report Summary* provides an executive summary of the entire report.
- *Part B: Introduction* provides a brief background on the formation of the Physical Activity Guidelines Advisory Committee and the development of their report.
- *Part C: Key Terms* defines many of the major terms used throughout the report, including those relating to physical activity, exercise, fitness, health, and measurement.
- *Part D: Background* provides context to the current guidelines development effort by briefly describing recent physical activity trends among Americans, by discussing some underlying concepts about physical activity dose response, by briefly describing recent physical activity trends among Americans, and by describing the development of previous physical activity recommendations in the United States.
- *Part E: Integration and Summary of the Science* synthesizes the Committee's findings about the relation of physical activity to a broad array of health outcomes.
- *Part F: Scientific Literature Search Methodology* explains the development and use of the *Physical Activity Guidelines for Americans* Scientific Database.

The second component, *Part G: The Science Base*, includes 11 sections that review and summarize the scientific literature relating physical activity to individual health-related outcomes and populations: all-cause mortality, cardiorespiratory health, metabolic health, energy balance, musculoskeletal health, functional health, cancer, mental health, adverse events, youth, and understudied populations.

The third component, *Part H: Research Recommendations* provides a summary of the PAGAC's collective recommendations about key areas of research that should be conducted to further enhance the science base on physical activity and health.