GOVERNMENT OF GUAM

WORKSITE WELLNESS PROGRAM

POLICIES, PROCEDURES AND GUIDELINES

REVISED JULY 2012

GOVERNMENT OF GUAM WORKSITE WELLNESS STEERING COMMITTEE

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WORKSITE WELLNESS PROGRAM

I. OVERVIEW, BACKGROUND AND AUTHORIZATION

In the late 90's, the Guam Health Planning and Development Agency and the Governor's Council on Physical Fitness and Sports developed the *Guam Physical Fitness and Wellness Plan: Visions 2001* which aimed to improve our community's health by preventing and controlling lifestyle risk factors through physical fitness and wellness.

In the past decade, two notable executive orders were created that promoted physical fitness and wellness to Government of Guam employees based on *Visions 2001*. These were Executive Order (E.O.) 98-21 and 2009-08.

In 1998, E.O. 98-21 mandated each Government of Guam agencies to develop worksite wellness programs to promote the physical fitness and wellness to their employees modeling the policies, procedures and guidelines recommended in the *Guam Physical Fitness and Wellness Plan: Visions 2001.* This worksite fitness and wellness program was commonly known as the Get Up and Move Program (GUAM).

In 2009, E.O. 2009- 08 was created to revive and improve the GUAM Program. This E.O. created the Healthy Guam Initiative's Government of Guam HEALTH (Having Every Age Live and Think Healthy) Program Steering Committee which was tasked to oversee the development and implementation of a Comprehensive Employee HEALTH Program. The program would have physical activities and education components whose goals were to provide a well rounded approach to employee health. This E.O. also mandated each agency to designate *HEALTH Coaches* to coordinate their agency's Get Up and Move Program and to participate in HEALTH Program Steering Committee meetings. The revisions made include guidelines on monitoring and evaluation to ensure accountability of each employee and to determine the success of the program.

In January 2010, the Department of Public Health and Social Services (DPHSS) received funding from the American Recovery Re-investment Act of 2009: Communities Putting Prevention to Work Grant to develop policies or improve existing health policies in Guam. Through this grant, DPHSS sought to strengthen and improve employee worksite wellness leading to the development of a Comprehensive Government of Guam Worksite Wellness Program.

In March 2012, E.O. 2012-07 was signed implementing the Government of Guam Worksite Wellness Program (WWP). The executive order supersedes all existing Government of Guam employee worksite fitness and wellness plans or programs resulting from Executive Orders 98-21 and 2009-08. The "new" WWP is designed to provide a holistic approach to employees' worksite wellness. The program is standardized to all government agencies and departments.

II. Logic Model

The underlying assumption of the Worksite Wellness Program is that employees perform at their best when they are healthy and that optimal employee performance is necessary for the island community to receive the best public service they deserve. With this in mind, the overall goal of the Worksite Wellness Program is to develop healthy and well-motivated Government of Guam employees who **ACT** immediately and correctly on tasks assigned to them because they:

- **A**re productive anywhere they are assigned to complete a task
- **C**ultivate a happy lifestyle of healthy eating and active living
- **T**ry to reach out to their co-workers to lead a healthy lifestyle

The Worksite Wellness Program targets all government of Guam employees, with the long-term goal of reaching even the employee's family members. The latter is based on the belief that it takes the whole family to support an employee's goal of better health and wellness. Major target groups that need to have a buy-in to the Worksite Wellness Program are the department heads and the supervisors that may make or break an agency's participation. Most important are the Health Coaches who will coordinate the Worksite Wellness Program at the agency level and whose commitment consists not only of running a smooth operation but also ensuring that rules are followed to the extent that no abuses are committed by the participants.

The logic model also recognizes external factors that may play a role in the success of the Worksite Wellness Program. Major factors relate with the impact of family conditions and other non-work related barriers or helpers such as social relations and commitments, economic factors including the need to engage in a second job to make ends meet thus limiting the participant's time to engage in health and wellness activities.

III. Worksite Wellness Program Expected Outcomes

It is expected that employees will report that the availability of worksite wellness program contributes to a positive work environment and healthier behavior. Employees who regularly participate in worksite wellness program will experience noticeable health benefits, better quality of life, will report fewer medical expenses, and will report higher levels of work productivity. The Worksite Wellness Program is expected to improve employees' over-all work performance including providing better service, lesser absenteeism related to preventable health problems, and increasing efficiency in the workplace.

IV. Goals and Objectives

A. Goals

The Worksite Wellness Program strives to improve the health, well-being and productivity of all government of Guam employees, by enhancing all aspects of health. The Worksite Wellness Program aims to increase awareness of positive health behaviors, to motivate employees to voluntarily adopt healthier behaviors and to provide opportunities and a supportive environment to foster positive lifestyle changes. To that end, we envision a work environment that fosters and maintains individual fitness of both mind and body. The Worksite Wellness Program exists to provide continuous encouragement and assistance to employees, through voluntary participation in program activities, in achieving and maintaining a healthier lifestyle through environmental and policy change strategies, wellness education and other events or activities provided at the worksite.

B. Objectives

The following objectives are outlined to ensure that the goals of the Worksite Wellness Program are met. Each Government of Guam agency is encouraged to adopt these objectives. These objectives follow the SMART (Specific, Measurable, Achievable, Relevant and Time- Framed) format.

SHORT TERM OBJECTIVES (1-6 Months):

- By __(State Month/Year)__, a Worksite Wellness Program will have been adapted and implemented by (State department or agency name.)

- By __(State Month/Year)__, at least _____% of employees will report that they know their weight (and if possible, body mass index and body fat percent).

- By __(State Month/Year)__, at least _____% of employees will report that they know their blood pressure levels.

- By __(State Month/Year)__, at least _____% of employees will report that they know their blood sugar levels.

- By __(State Month/Year)__, at least _____% of employees will report that they know their total cholesterol. (If possible, include HDL and LDL cholesterol levels and triglycerides.)

- By __(State Month/Year)__, at least ____% of employees will report that they have participated in at least (state the number) physical fitness and/ or wellness activity each month.

- By __(State Month/Year)__, at least ____% of employees who have participated in an "education or awareness" activities will report that the activities increased their knowledge about healthy lifestyle behaviors.

MEDIUM TERM OBJECTIVES (7-Months -1 year):

- By __(State Month/Year)__, at least ____% of employees who regularly participated in physical fitness activities will report that they maintained the activity for at least 3 months.

- By __(State Month/Year)__, at least ____% of employees will report that the Worksite Wellness Program and activities are sensitive to the needs and interests of employees.

- By __(State Month/Year)__, at least ____% of employees will report that having the Worksite Wellness Program contribute to a more positive work climate.

LONG TERM OBJECTIVES(1 year -2 years):

- By __(State Month/Year)__, at least _____% of employees will report that the stress management programs and education provided through the Worksite Wellness Program successfully helped them reduce their level of stress.

- By __(State Month/Year)__, at least _____% of employees will report that they eat fruits and vegetables 5 or more times per day.

- By __(State Month/Year)__, at least _____ % of employees will report that they have reduced their intake of meat (beef, pork, poultry, lamb, etc).

- By __(State Month/Year)__, at least _____ % of employees will report that they have reduced their salt intake.

- By __(State Month/Year)__, at least _____ % of employees will report that they have increased their consumption of whole grains.

- By __(State Month/Year)__, at least _____% of employees will report that they have decreased their use of tobacco/betel nut.

- By __(State Month/Year)__, at least _____ % of employees will report improvements in their general health. (ie. improvements in weight, body fat, body mass index; cholesterol and blood sugar levels; and/or blood pressure)

- By __(State Month/Year)__, at least ____% of employees will report that they meet current physical activity recommendations of the *2008 Physical Activity Guidelines for Americans*.

- By __(State Month/Year)__, at least ____% of employees will report an increase in their productivity at work through positive feedback from appropriate supervisors.

V. Major Components of the Worksite Wellness Program

The following are the two major components of the Worksite Wellness Program.

A. PHYSICAL ACTIVITY COMPONENT:

Employees who registered in the Worksite Wellness Program are expected to use this program to engage in physical fitness activities that is appropriate for them. These activities may include walking, running, swimming, weight training, or participating in structured classes offered at the gyms or other wellness facilities.

Depending on the condition of an employee's health, it is recommended that a participating employee consult a doctor or health professional before performing physical fitness activities to find out the appropriate types, level and intensity of activities that he or she can engage in. In addition, each employee is recommended to read the *2008 Physical Activity Guidelines for Americans* to have a deeper understanding on the rationale and science behind physical activity. A short summary of the guideline can be found on this plan. The website for the *2008 Physical Activity Guidelines for Americans* is http://www.health.gov/paguidelines.

Worksite Wellness Locations

Employees are recommended to conduct their physical fitness activities in locations that are conducive and appropriate for the activities they wish to engage in. Some of these locations include public parks and recreation areas (i.e. Dededo Sports Complex Walking Trail, Paseo Stadium); fitness and wellness facilities; and even at the employee's particular worksite.

In certain instances, an agency head may pre- determine the allowable locations and activities for their employees to utilize, based on their agency needs such as providing better accountability for their

employees. The Health Coach should work with his or her agency head to provide a list of allowable locations to where employees can conduct their fitness program.

Employees enrolled in the current Government of Guam health insurance provider are encouraged to utilize fitness benefits such as the free memberships in selected local gyms or wellness facilities.

B. EDUCATIONAL AND OTHER WORKSITE WELLNESS ACTIVITIES

Each government agency is recommended to plan and implement worksite wellness activities and support activities to make the Worksite Wellness Program more dynamic and interesting. Support activities may include coordinating physical activity and wellness classes at the worksite with appropriate providers or organizations; development of short term programs such as weight reduction contests, sports teams that are competitive or non- competitive in nature, walking groups, etc; work with appropriate personnel to implement fitness and wellness activities available under the GovGuam group health insurance contracts, and other related activities. These activities will also help encourage employees, who opt not to participate in the physical fitness activities (PA), to seek active lifestyles.

Education and other wellness activities aim to enhance and compliment the physical fitness activities of employees. Health Coaches are responsible for coordinating these activities with the Steering Committee and other community partners. Examples of these activities include, but not limited to: cooking classes, nutrition classes, chronic disease prevention classes, Diabetes management classes, stress reduction classes, etc.

Employees registered with the Worksite Wellness Program are encouraged to participate in both physical fitness activities and wellness activities to maximize their experience. They may use their program time privilege to participate in these additional activities.

Participation with the Worksite Wellness activities will require approval from agency heads and/or immediate supervisor.

The focus and content of education and other wellness support activities are subject for approval and availability. These will be coordinated by the designated agency or department Health Coaches.

The following are recommended focus points for Worksite Wellness Activities:

Priority objectives:

- Increasing the use of preventive screenings and services
- Improving healthy eating among employees
- Increasing physical activity among employees
- Improving tobacco prevention and cessation policies and benefits
- Improving stress management among employees

- Increasing the use of health program benefits offered through the Government of Guam health insurance (i.e. As of FY2012, benefits include : wellness benefits at the SDA Wellness Center; free access to Kontendas Gym, Paradise Fitness Center and Synergy Studios).

The following are the suggested topics/activities that could be implemented at worksites:

- Physical activity/exercise
- Nutrition/healthy eating
- Weight management
- Stress management
- Cholesterol control
- Blood pressure control

- **Health promotion activities that employees are likely to participate in:**
  - Health screenings at work
  - Healthy food tasting, demonstrations, cooking classes
  - Mandatory departmental supported group exercises
- **Additional Wellness activities that can be integrated:**
  - Weight management program
  - Aerobic exercise classes
  - Walking clubs or events
  - Healthy cooking classes
  - Fitness or Wellness Challenges
  - Workshops on Stress Management
- **Communication channels for disseminating information**
  - Weekly email tips
  - Classes or seminars
  - Pamphlets, flyers, or other written material
  - Websites
- **Focus on group- rather than individual-oriented programs**
  - Provide incentives or rewards that would be attractive to the participants of the program

- Participation to the annual events, such as American Cancer Society Relay for Life, Great American Smokeout, National Employee Health and Fitness Day, etc.
- Development of Policies that support Healthy Environment(i.e., designated worksite wellness areas or rooms)
- Smoke-free Environment Policy
- Healthy Vending Machine Policy
- Three hours off a week during normal work hours for health and fitness related activities
- Encouragement for cafeteria/vending machines to offer healthy food options
- Physical facilities that encourage physical activity (i.e. cleaner and safer stairwells)

VI. WORKSITE WELLNESS PROGRAM POLICIES AND PROCEDURES FOR PARTICIPATION

The Worksite Wellness Program is the Government of Guam's physical fitness and wellness program developed for Government of Guam employees. This program is uniquely designed for employees who wish to improve their overall health, quality of life, and productivity by engaging in physical fitness and wellness activities. These can lead to increased efficiency and better service in the workplace.

Through Executive Order 2012-07, each agency and department under the Government of Guam is mandated to provide this program for their employees.

Procedures for Participation

Any Government of Guam employee who chooses to participate in the Worksite Wellness Program must complete the **Registration and Statement of Medical Clearance Form** (Appendix A) and **Lifestyle Questionnaire** (Appendix B).

These forms should be submitted to their Health Coaches. Employees are required to have their supervisor and/ or Health Coaches approve their participation.

Medical Clearance and Lifestyle Checklist

The **Registration Form and Statement of Medical Clearance** and the **Lifestyle Checklist** are requirements of the program guidelines and are integral components of the Wellness Program. It must be obtained by the employee from a licensed physician and must include:

- Blood glucose level
- Blood pressure
- Body composition (height, weight, body mass index and body fat)

Every participating employee must complete the **Lifestyle Checklist** regardless of medical clearance. Required program documents are to be submitted to the agency's Health Coach, who will file these documents in the employee's fitness records.

All materials filed with the Health Coach will be kept **CONFIDENTIAL**. Unless authorized by the employee, no other personnel may have access to these records.

Worksite Wellness Program Policies

The Worksite Wellness Program follows the policies outlined in the *Guam Physical Fitness and Wellness Plan: Visions 2001* which was developed to encourage fitness and wellness in the workplace.

The policies for the Worksite Wellness Program shall be as follows:

A. Full- time Government of Guam employee will be given the opportunity to participate in the Worksite Wellness Program. The agency or department may survey their employees on the days and times physical fitness and wellness activities are to be conducted, and through a consensus, schedule the activities on those days and times.

B. Employees who chose to avail of the Worksite Wellness Program will be required to register through their Health Coaches and baseline health indicators will be established.

C. Each Agency will provide time during work hours but not more than **one (1) hour and not more than three (3) days a week** are allotted for physical fitness and wellness activities to the employee. The one hour includes preparation time for the program, personal hygiene time after the program, and travel time back to the work place. The employee will not be allowed to accumulate or "bank" their hours so that they can utilize three Worksite Wellness Program hours for one day. Employees may negotiate with their supervisor if they can use their 15 minute break in the afternoon to prepare for the program.

D. An employee can only participate in the Worksite Wellness Program for selected day(s) **if the employee works a full day**. For example, an employee cannot be on annual, flex or sick leave for a half a work day and then participate in the fitness program in the remainder of the day. Additionally, excessive tardiness, unjustified absences and non productivity at work can cause management to suspend an employee's fitness program.

E. Employees that choose not to participate in Worksite Wellness Program are not to use the time allotted for the program for personal business and must be at their place of work.

F. Employees are hereby informed that the mission of the agency takes precedence over the Worksite Wellness Program when schedules conflict.

G. Employees participating in physical fitness and wellness programs and/ or activities offered outside the Government of Guam will be at their own expense. However, the Steering Committee may assist and work with the agency or department to coordinate availability and accessibility of various physical fitness and wellness programs outside the Government of Guam.

H. Employees must provide the required program documents to their Health Coach, and their immediate supervisor. As necessary, each employee is also responsible for providing updated documents to their Health Coach and supervisor.

VII. Implementation: Worksite Wellness Program

A. Steering Committee and Health Coaches

Steering Committee:

In accordance with Executive Order 2012-07, a Worksite Wellness Steering Committee (Steering Committee) was established to oversee the Worksite Wellness programs, activities, and initiatives being implemented in each Government of Guam agency. The Steering Committee is envisioned to provide support, guidance and leadership to ensure that the program continue to grow, improve and expand.

The Steering Committee is comprised of members from the Governor's Council on Physical Fitness & Sports, Department of Public Health & Social Services, Human Resources Division of the Department of Administration, representatives from the health insurance provider/s and representatives from the other agencies and organizations.

The following are the duties and responsibilities of the Steering Committee:

A. Duties of the Steering Committee members may include:

- Determine types of activities to be included in the Worksite Wellness Program
- Develop and ensure implementation of incentive programs for participation
- Develop, promote and implement Worksite Wellness activities
- Form appropriate subcommittees to implement Worksite Wellness activities
- Decentralize responsibility for and availability of wellness programs to all agencies/departments
- Determine how agency issues affect the wellness program and make recommendations to agency administration

B. The Steering Committee will perform their duties by abiding by the following action steps:

- Promotion: Encourage employee participation and promote and support wellness activities
- Liaison: Relay information and concerns between the Steering Committee and employees
- Leadership: Serve as a role model for fellow employees by practicing, to some extent, healthy lifestyle behaviors; motivate and encourage employee, co-workers, or volunteers to choose a healthy lifestyle; and participate in wellness committee meetings and events
- Active participation: Contribute individual expertise to the committee and the activities by attending and participating in meetings, activities, and organization of activities and events

Health Coaches:

Each state agency will designate one or more **Health Coaches**, depending on the size of the agency, who will provide overall supervision and guidance in implementing the Worksite Wellness Program in their respective agency. The responsibilities of the Health Coach are:

- Act as a liaison between their agency and the Steering Committee who will provide over- all direction and leadership for the Worksite Wellness Program
- Understand and implement the policies and procedures of the Worksite Wellness Program
- Collect and file pertinent employee and/or program documentation/s
- Ensure that all employee files and documents are organized, updated and are kept confidential
- Assess and monitor employee progress determined by the health indicators indicated in this policy
- Assist in developing various physical fitness and wellness activities to enhance employee participation in the program
- Work with their particular agency to evaluate the Worksite Wellness Program
- Provide recommendations that may help improve the Worksite Wellness Program

Because of the importance of privacy and confidentiality regarding employees' files and records, each Health Coach is required to complete a **Health Coach Confidentiality Statement** (Appendix C). Health Coaches may be held liable should employees' personal information be revealed through improper handling and storage of files and documents.

Agencies that do not have a designated Health Coach will **not be allowed** to implement the program until such time a Health Coach is designated by the agency.

The Responsibilities of the Health Coach to the Steering Committee will include, but is not limited to:

- Organizing and implementing worksite wellness activities suggested by the Steering Committee
- Coordinating review of an agency's Worksite Wellness Program and maintaining communications with other agencies and public/private wellness programs to foster collaborative efforts in worksite wellness activities
- Providing materials and training to wellness committee and subcommittees on planning, organizing and implementing wellness activities
- Gathering data from all Government of Guam employees by conducting needs assessment and program evaluation surveys, holding focus groups and making use of all other means of employee input. This data will be used to determine needs and interests as well as satisfaction of employees
- Providing appropriate materials and technical assistance for the Steering Committee to coordinate awareness, lifestyle change, and supportive environment activities as indicated by input from Government of Guam employees

- Monitoring progress of program participants and evaluating the program's effectiveness in achieving its goals
- Collaborating with the instructors to insure the quality and appropriateness of the activities
- Providing feedback to management, the Steering Committee and employees on the program's achievements and needs
- Serves as the agency representative/consultant to outside groups interested in developing a wellness program.

B. Eligibility Requirements for the Worksite Wellness Program

The following are the eligibility requirements and procedures for employees who wish to participate in the Worksite Wellness Program:

1. Any fulltime Government of Guam employee is eligible for voluntary participation in the Comprehensive Worksite Wellness Program which includes the physical activity component, and educational and other wellness activities. Family members are encouraged to participate as long as their participation does not preclude the participation of a government employee; they meet the physical fitness readiness requirements, and completion of required forms.

2. Any employee who chooses to participate in the Worksite Wellness Program must abide by the procedures outlined in the Worksite Wellness Program Policies, Procedures and Guidelines.

3. Supervisors are encouraged to support their employees by providing them opportunity to arrange their work schedules, with appropriate coverage, to participate in the Worksite Wellness Program.

C. Scheduling & Allowable Times

The Worksite Wellness Program should be scheduled and implemented in accordance with the recommended allowable times. However, respective agency heads may choose their own schedule based on the individual agency's needs.

Health Coaches are encouraged to coordinate the activities to ensure that they will not hamper the operations of the worksites.

1. Days allowed for the Worksite Wellness Program will be from Monday through Friday. Saturday and Sunday hours would be the employee's choice, however, this would not allow the employee to take off during the regular work week.

2. The times allowed for the fitness program will be **one hour a day, three times a week**. Please note that the time given to the employees is a **privilege and not a right**.

Illustrative examples for allowable time:

OPTION 1: 11:00 am - 12:00 noon Fitness program 12:00 pm - 1:00 pm Lunch	**OPTION 3:** 11:30 am – 12:30 pm Fitness Program 12:30 pm – 1:30 pm Lunch
OPTION 2: 12:00 Noon – 1:00 pm Fitness Program 1:00 pm – 2:00 pm Lunch	**OPTION 4:** 4:00 pm – 5:00 pm Fitness Program

D. USE OF FACILITIES

The agencies have options where worksite wellness activities will take place. This may include conference rooms and other available on-site indoor and outdoor areas as well as off-site locations such as local gym facilities.

Health Coaches may need to develop a system to ensure accountability for those employees who participate in outdoor or off-site locations.

E. CRITERIA FOR THE WELLNESS INSTRUCTORS

To ensure that employees receive quality education, services and instruction, it is recommended that:

1. Wellness Instructors may include: health educators, nutritionists, mental health professionals, certified fitness instructors, qualified yoga instructors, registered massage therapists, and others as appropriate.

2. Only those with appropriate credentials will be allowed to conduct Wellness classes. The agency Health Coach will review the Instructors' qualifications to ensure the highest standards are met.

3. All instructors for physical activities must meet all required criteria including current CPR certification, personal liability insurance, and certification from an appropriate fitness instructor-certifying agency.

4. In the case that an employee meets the requirements for becoming a provider of services, that employee will perform those services at no cost if delivered during normal working hours, or may charge a fee if the services are delivered during non-working hours such as lunch or after work. In no case will employees receive compensation for providing services during the time they are being paid by the government.

VIII. WORKSITE WELLNESS EVALUATION

Evaluation Methodology for the Program

It is recommended that the Worksite Wellness Program and activities be evaluated to ensure that the program is reaching its goals and objectives. This will also help identify an agency's strengths and weaknesses which may help the agency develop corrective strategies.

Recommended methods for monitoring and evaluating the program will include the following:

1. Bi-annual monitoring of the employees health indicators.
2. Employee-wide survey after a year to assess awareness of, participation in, and satisfaction with the program.
3. Monthly reports of participation in the various lifestyle and awareness activities offered throughout the year.
4. Monthly reports on types and numbers of programs offered.
5. Employee focus groups, surveys, and suggestion boxes for obtaining quantitative and qualitative employee input into program activities.
6. Session evaluation forms will be completed by participants for all educational events. Brief awareness activities such as handing out printed materials would not require such forms.
7. Employees may complete the *Lifestyles Checklist* periodically to assess adoption of healthy behaviors.
8. Measurement of usage of employee sick leave as reported by wellness program participants.

The following is an illustrative example of a general timelines for evaluating your program. Health Coaches are free to use whatever strategy they feel will be more effective in conducting evaluations.

YEAR ONE EVALUATION				
	QUARTER 1	**QUARTER 2**	**QUARTER 3**	**QUARTER 4**
Strategy:	1) Establish baseline data using the Lifestyle Checklist 2) Establish baseline standard health indicators	Conduct periodic surveys Worksite Wellness evaluation forms	Conduct periodic surveys	1) Compare baseline with year- end data relating to Lifestyle Checklist 2) Compare baseline with year- end standard health indicators
Activity:	1) Distribute Lifestyle Checklists to employees 2) Coordinate Worksite Wellness Screenings	1) Conduct monthly email surveys	1) Conduct monthly email surveys	1) Re- distribute Lifestyle Checklists to employees 2) Coordinate Year- end Worksite Wellness Screenings
Notes: • Evaluate each program, initiative or new policy immediately prior to implementation (baseline measures), immediately following completion, and 90 days following completion. • Evaluate ongoing or long-term lifestyle change activities (6-weeks or longer) will also include periodic evaluation as appropriate throughout the program.				

The collection and retention of monthly reports will be handled by the Health Coach. Moreover, the development, implementation and summation of the employee evaluation surveys of the program will be coordinated by the Health Coach and the Steering Committee. A yearly report will be prepared and disseminated to employees and management.

The evaluation processes will help make sure that an agency's Worksite Wellness Program and activities continue to be relevant, viable, and meaningful to their employees.

Evaluation Methodology for Employees

Standard Health Indicators:

a. The Worksite Wellness Program is looking at several key health indicators to measure an employee's overall progress in the program. The program may measure any one or any combinations of the following health indicators:

- Body Weight
- Body Mass Index
- Body Fat Percent
- Blood Pressure
- Blood Sugar
- Blood Lipids (Total Cholesterol)

b. All Government of Guam agencies implementing the Worksite Wellness Program must utilize the standard health indicators as measures of progress.

c. The Health Coach can work with the Department of Public Health and Social Services, Steering Committee, Healthcare provider, or any sanctioned agency or activity that can provide health screening services to determine the health status for their employees. **An employee will not be able to participate in the program without establishing at least one baseline standard health indicator**. In addition, Worksite Wellness Program privileges may be suspended if progress is not determined through follow- up health screenings.

d. Employees who are healthy, or have achieved normal ranges for all health indicators are expected to maintain these normal ranges through the Worksite Wellness Program. These employees are considered in the "maintenance mode" and may require little supervision from their health coach. These employees are eligible or continue to be eligible in the program.

e. Every six (6) months, an employee must show improvements in any one (or combinations) of the key health indicators, or achieve "maintenance mode," to be allowed to continue in the Worksite Wellness Program.

f. An employee that does not show any improvements, or show negative trends in any of the six health indicators must work with their Health Coaches to develop a suitable and appropriate wellness plan to help achieve success in the program. This may involve seeking additional support from appropriate experts. However, Health Coaches may recommend the suspension of an employee's program privileges should he or she continue to show no improvements.

g. An employee who shows negative trends in one or any combination of the health indicators, and who also shows positive trends to any one or any combination of the health indicators will

be evaluated by the Health Coach or experts on a case by case basis to determine if the employee can remain in the program.

h. The Health Coach will provide avenues for employees to determine their current health status by working with the Steering Committee, the Department of Public Health and Social Services and health insurance provider/s to avail of regular health screening activities (at least twice a year: the first is to establish employee baselines, second is to determine progress), or provide information for sanctioned health screening activities that their participants can avail.

i. An employee may work with his or her medical provider to provide measurements for these health indicators should their agency not provide health screening services.

j. Health indicators taken outside the program's sanctioned health screening activity will be approved by their Health Coach on a case by case basis should an employee fail to participate in any of the sanctioned health screening activities outlined by the Health Coach.

k. A Health Coach, through the Steering Committee and/or the Governor's Council on Physical Fitness and Sports can officially sanction a health screening activity to determine health progress.

3. Additional Health Indicators:

a. Along with the standardized health indicators, Health Coaches may plan, design and implement additional (and agency specific) health indicators that may help provide a better determination for their employees' status. For example, a Health Coach may develop a plan to utilize the frequency of an employee's participation in the Worksite Wellness Program time as an additional health indicator to show improvement.

b. The additional health indicators must be approved for use by the Steering Committee and/or the Governor's Council on Physical Fitness and Sports. They should be clearly stated and added to their agency's Worksite Wellness Program Policies and Procedures.

c. These additional health indicators may help a Health Coach determine an employee's status in the program. However, they may not replace the standard health indicators provided in the program.

X. CONCLUSION

The concept of fitness and wellness is not unique. It has been around and has been used by other organizations. This worksite wellness program is for your employees' health and wellness. Be prudent, act wisely, and enjoy the program.

APPENDIX

APPENDIX A – REGISTRATION FORM & STATEMENT OF MEDICAL CLEARANCE

WORKSITE WELLNESS PROGRAM
REGISTRATION FORM & STATEMENT OF MEDICAL CLEARANCE

REGISTRATION INFORMATION

Full Name: _____

Date of Birth: _____ Age: _____

Sex: [ ] M [ ] F Ethnicity: _____

Department: _____ Division/Section/Program: _____

Contact Numbers: _____ **Email:** _____

Village/Residence: _____

STATEMENT OF MEDICAL CLEARANCE

I, _____ do not have any medical problems or conditions that would preclude me from participating in physical fitness and wellness activities. I understand that it is my responsibility to obtain medical clearance, at no cost to the government, prior to participating in physical fitness and wellness programs.

Furthermore, should I incur any injury or injuries while performing physical fitness and wellness activities I will be liable and responsible for the medical care and services provided to me. I hereby waive and release the government/department management, employees and their representatives from all claims or liabilities of any kind arising out of my participation in this program.

Additionally, by signing this Form, I acknowledge that I have read the government of Guam Worksite Wellness Program Policies and Procedures and understand that it is offered as a benefit to me, and is an opportunity to increase my physical and mental fitness. However, in order to be allowed to continue in the Worksite Wellness Program, I understand that every six (6) months I must provide to my Health Coach documentation of improvement in any one (or combination) of the key health indicators, and/or achieve "maintenance mode".

Print Name: _____ Date: _____

Signature: _____

APPROVED BY SUPERVISOR (SIGN AND DATE): _____

ACKNOWLEDGED BY HEALTH COACH (SIGN AND DATE): _____

APPENDIX B – LIFESTYLE CHECKLIST

WORKSITE WELLNESS AND PROGRAM

LIFESTYLE CHECKLIST

Health Indicators	Column A	Column B	Column C	Column D
1. Body Mass Index. What is your body mass index (BMI)?	☐ BMI 30+	☐ BMI 25-29.9	☐ BMI <25	☐ BMI <18.5
2. Physical activity. How many days do you get 30+ min of physical activity	☐ No regular Physical activity	☐ 2 days Per week	☐ 3-4 days Per week	☐ 4-7 days Per week
3. Tobacco/betel nut use. Indicate your use (includes cigarettes, chewing tobacco, betel nut)	☐ Current user	☐ Frequently exposed to second - hand smoke OR social user	☐ Ex-user	☐ Non-user
4. Meat intake. How often do you eat meat (beef, pork, poultry, lamb, etc)?	☐ Once a month or less	☐ 2-3 times/month	☐ 2-3 times a week	☐ daily
5. Whole grains. How many servings/day (1 serving = 1 slice whole wheat bread, or ½ C brown rice or oatmeal, or 2/3 C dry cereal	☐ White rice or White flour only	☐ 1 serving of whole grain/day	☐ 2-3 servings of whole grain/day	☐ 4+servings/day
6. Fruits. How many servings/day do you eat? (1 serving = 1 medium fruit (baseball size), or 1 cup raw or juiced fruit	☐ None at all	☐ 1-2 servings/ day	☐ 3-4 servings/ day (OR if on diabetic diet 1-2 servings/ day)	☐ 5+ servings/ day
7. Vegetables. How many servings/day do you eat? (1 serving = 1 medium fruit, 1 C of raw, cooked or juiced vegetables 2 cups of leafy salad greens	☐ None at all	☐ 1-2 servings/ day	☐ 3-4 servings/ day	☐ 5+ servings/ day
8. Nuts & beans. How many servings/week do you eat? (1 serving = 1 oz. nuts or seeds, 2 T nut butter) do you eat?	☐ None at all	☐ 1-2 servings/ week	☐ 3-4 servings/ week	☐ 5+ servings/ day
9. Level of satisfaction with your life. All in all, how satisfied are you with your life?	☐ Somewhat satisfied	☐ Satisfied	☐ Very satisfied Most of the time	☐ Very satisfied always
10. Sleep. How often do you get at least 7-8 hours of sleep daily?	☐ Seldom, less than 3 days/week	☐ Occasionally, 3-4 days/week	☐ Most of the time, 3-4 days/week	☐ All the time, i.e. everyday
11. Blood Pressure. What is your blood pressure (normal or with medication)?	☐ Less than 120/80	☐ 120/80 to 134/84	☐ 135/85 to 139/89	☐ 140/90+

APPENDIX C – HEALTH COACH CONFIDENTIALITY AGREEMENT

HEALTH COACH CONFIDENTIALITY AGREEMENT

It is the responsibility of all HEALTH Coaches to preserve and protect confidential employee information.

Confidential Employee Information includes, but is not limited to, the following:

- Employee home telephone number, mobile telephone number, and home address;
- Spouse or other relative names;
- Social Security number;
- Health condition (chronic diseases, weight, BMI, blood pressure, etc.)

I understand and acknowledge that:

1. I shall respect and maintain the confidentiality of all discussions, deliberations, employee records and any other information generated in connection with the Worksite Wellness Program.

2. It is my responsibility to protect the privacy, confidentiality and security of all records relating to the Worksite Wellness Program.

3. I shall only access or disseminate employee information in the performance of my assigned duties and where required by or permitted by law. I shall make no voluntary disclosure of any discussions or deliberations, of employee records except to persons authorized to receive it in the conduct of the Worksite Wellness Program.

4. I agree to discuss confidential information only in the work place and only for job related purposes and to not discuss such information outside of the work place or within hearing of other people who do not have a need to know about the information.

5. My obligation to safeguard employee confidentiality continues after my termination of employment with the Government of Guam.

I hereby acknowledge that I have read and understand the foregoing information and that my signature below signifies my agreement to comply with the above terms. In the event of a breach or threatened breach of this Confidentiality Agreement, I acknowledge that the Government of Guam may, as applicable and as it deems appropriate, pursue disciplinary action up to and including my termination from the Government of Guam.

Dated: _____ Signature: _____

Print Name: _____ Department: _____

APPENDIX D – LOGIC MODEL

Worksite Wellness Program Logic Model

PRIORITIES
1. Health where Guamanians live, work, learn
2. Executive Order No. 2012-07

Inputs

What we invest:

- Steering Committee
- WW Program: Policies, Procedures, & Guidelines
- Materials, supplies, equipment
- Funding

Outputs

Activities

What we do: WW Program

- Program Registration and Health Screenings (Baseline Indicators)
- Physical Activity
- Worksite Wellness Activities
- Incentives
- Employee Accountability

Participation

Who we reach

- All GovGuam employees and their families
- Department Heads
- Supervisors
- Health Coaches

Outcomes – Impact

Short Term

Short-term results are (0- 6 mos)

Employees
→register in the program
→obtain initial screening
→obtain initial health lifestyle score
→learn disease prevention
→learn proper nutrition
→engage in fitness programs
→follow the program policies

Medium-Term

Medium term results are (7-12 mos)

Employees
→improve screen scores
→improve their health lifestyle score
→practice habits for disease prevention
→stick to the proper nutrition program
→stick to the fitness program
→engage thru the Refer-A- Friend

Long-term

Ultimate impacts are (beyond 12 mos)

Employees who are healthy & motivated
→leads to less sick leave
→motivated to work
→improved camaraderie and morale
→ increased productivity, service and efficiency
→decreased health costs

Assumptions
Employees will be interested and motivated to participate

External Factors
Family conditions and non-work related obligations

SURVEILLANCE & EVALUATION

SUPPLEMENTAL INFORMATION

2008 PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS

The *2008 Physical Activity Guidelines for Americans* (a copy of the entire document can be found at http://www.health.gov/paguidelines/pdf/paguide.pdf) is the first comprehensive guidelines on physical activity ever to be issued by the Federal government. The document is intended to be a primary source of information for policy makers, physical educators, health providers, and the public on the amount, types, and intensity of physical activity needed to achieve many health benefits for Americans across the life span. Being physically active is one of the most important steps that Americans of all ages can take to improve their health. The main idea behind the Guidelines is that regular physical activity over months and years can produce long-term health benefits. Realizing these benefits requires physical activity each week. The *2008 Physical Activity Guidelines for Americans* provides science-based guidance to help Americans aged 6 and older improve their health through appropriate physical activity.

THE DEVELOPMENT OF THE PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS

Since 1995 the *Dietary Guidelines for Americans* has included advice on physical activity. However, with the development of a firm science base on the health benefits of physical activity, the Department of Health & Human Services (HHS) began to consider whether separate physical activity guidelines were appropriate. With the help of the Institute of Medicine, HHS convened a workshop in October 2006 to address this question. The workshop's report, *Adequacy of Evidence for Physical Activity Guidelines Development (*http://www.nap.edu/catalog.php?record_id= 11819), affirmed that advances in the science of physical activity and health justified the creation of separate physical activity guidelines.

The steps used to develop the *Physical Activity Guidelines for Americans* were similar to those used for the *Dietary Guidelines for Americans.* In 2007 HHS Secretary Mike Leavitt appointed an external scientific advisory committee called the Physical Activity Guidelines Advisory Committee. The Advisory Committee conducted an extensive analysis of the scientific information on physical activity and health. The *Physical Activity Guidelines Advisory Committee Report, 2008* and meeting summaries are available at http://www.health.gov/PAGuidelines/.

HHS primarily used the Advisory Committee's report but also considered comments from the public and Government agencies when writing the Guidelines. The Guidelines will be widely promoted through various communications strategies, such as materials for the public, Web sites, and partnerships with organizations that promote physical activity.

THE FRAMEWORK FOR THE PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS

The Advisory Committee report provided the content and conceptual underpinning for the Guidelines. The main elements of this framework are described in the following sections.

Baseline Activity versus Health-Enhancing Physical Activity

Physical activity has been defined as any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level. However, in this document, the term "physical activity" will generally refer to bodily movement that enhances health. Bodily movement can be divided into two categories:

- Baseline activity refers to the light-intensity activities of daily life, such as standing, walking slowly, and lifting lightweight objects. People vary in how much baseline activity they do. People who do only baseline activity are considered to be inactive. They may do very short episodes of moderate- or vigorous-intensity activity, such as climbing a few flights of stairs, but these episodes aren't long enough to count toward meeting the Guidelines. The Guidelines don't comment on how variations in types and amounts of baseline physical activity might affect health, as this was not addressed by the Advisory Committee report.

- Health-enhancing physical activity is activity that, when added to baseline activity, produces health benefits. In this document, the term "physical activity" generally refers to health-enhancing physical activity. Brisk walking, jumping rope, dancing, lifting weights, climbing on playground equipment at recess, and doing yoga are all examples of physical activity. Some people (such as postal carriers or carpenters on construction sites) may get enough physical activity on the job to meet the Guidelines.

Not enough is understood about whether doing more baseline activity results in health benefits. Even so, efforts to promote baseline activities are justifiable. After all, baseline activities are normal lifestyle activities. Encouraging Americans to increase their baseline activity is sensible for several reasons:

- Increasing baseline activity burns calories, which can help in maintaining a healthy body weight.
- Some baseline activities are weight-bearing and may improve bone health.
- There are reasons other than health to encourage more baseline activity. For example, walking short distances instead of driving can help reduce traffic congestion and the resulting air pollution.
- Encouraging baseline activities helps build a culture where physical activity in general is the social norm.
- Short episodes of activity are appropriate for people who were inactive and have started to gradually increase their level of activity, and for older adults whose activity may be limited by chronic conditions.

The availability of infrastructure to support short episodes of activity is therefore important. For example, people should have the option of using sidewalks and paths to walk between buildings at a worksite, rather than having to drive. People should also have the option of taking the stairs instead of using an elevator.

Health Benefits versus Other Reasons To Be Physically Active

Although the Guidelines focus on the health benefits of physical activity, these benefits are not the only reason why people are active. Physical activity gives people a chance to have fun, be with friends and family, enjoy the outdoors, improve their personal appearance, and improve their fitness so that they can participate in more intensive physical activity or sporting events. Some people are active because they feel it gives them certain health benefits (such as feeling more energetic) that aren't yet conclusively proven for the general population.

The Guidelines encourage people to be physically active for any and all reasons that are meaningful for them. Nothing in the Guidelines is intended to mean that health benefits are the only reason to do physical activity.

Focus on Disease Prevention

The Guidelines focus on preventive effects of physical activity, which include lowering the risk of developing chronic diseases such as heart disease and type 2 diabetes.

Physical activity also has beneficial therapeutic effects and is commonly recommended as part of the treatment for medical conditions. The Advisory Committee report did not review the therapeutic effects of activity, and the Guidelines do not discuss the use of physical activity as medical treatment.

Health-Related Versus Performance-Related Fitness

The Guidelines focus on reducing the risk of chronic disease and promoting health-related fitness, particularly cardiovascular and muscular fitness. People can gain this kind of fitness by doing the amount and types of activities recommended in the Guidelines.

Four Levels of Physical Activity

The Advisory Committee report provides the basis for dividing the amount of aerobic physical activity an adult gets every week into four categories: inactive, low, medium, and high (see table below). This classification is useful because these categories provide a rule of thumb of how total amount of physical activity is related to health benefits. Low amounts of activity provide some benefits; medium amounts provide substantial benefits; and high amounts provide even greater benefits.

Classification of Total Weekly Amounts of Aerobic Physical Activity Into Four Categories

Levels of Physical Activity	Range of Moderate-Intensity Minutes a Week	Summary of Overall Health Benefits	Comment
Inactive	No activity beyond baseline	None	Being inactive is unhealthy.
Low	Activity beyond baseline but fewer than 150 minutes a week	Some	Low levels of activity are clearly preferable to an inactive lifestyle.
Medium	150 minutes to 300 minutes a week	Substantial	Activity at the high end of this range has additional and more extensive health benefits than activity at the low end.
High	More than 300 minutes a week	Additional	Current science does not allow researchers to identify an upper limit of activity above which there are no additional health benefits.

- **Inactive** is no activity beyond baseline activities of daily living.
- **Low activity** is activity beyond baseline but fewer than 150 minutes (2 hours and 30 minutes) of moderate-intensity physical activity a week or the equivalent amount (75 minutes, or 1 hour and 15 minutes) of vigorous-intensity activity.

- **Medium activity** is 150 minutes to 300 (5 hours) minutes of moderate-intensity activity a week (or 75 to 150 minutes of vigorous-intensity physical activity a week).
- **High activity** is more than the equivalent of 300 minutes of moderate-intensity physical activity a week.

Relationship to Previous Public Health Recommendations

In 1995 the Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) published physical activity recommendations for public health. The report stated that adults should accumulate_at least 30 minutes a day of moderate-intensity physical activity on most, preferably all, days per week. In 1996 *Physical Activity and Health: A Report of the Surgeon General* supported this same recommendation.

In order to track the percentage of adults who meet this guideline, CDC specified that "most" days per week was 5 days. Since 1995 the common recommendation has been that adults obtain at least 30 minutes of moderate-intensity physical activity on 5 or more days a week, for a total of at least 150 minutes a week.

The *Physical Activity Guidelines for Americans* affirms that it is acceptable to follow the CDC/ACSM recommendation and similar recommendations. However, according to the Advisory Committee report, the CDC/ACSM guideline was too specific. In other words, existing scientific evidence does not allow researchers to say, for example, whether the health benefits of 30 minutes on 5 days a week are any different from the health benefits of 50 minutes on 3 days a week. As a result, the new Guidelines allow a person to accumulate 150 minutes a week in various ways.

THE HEALTH BENEFITS OF PHYSICAL ACTIVITY

All Americans should be regularly physically active to improve overall health and fitness and to prevent many adverse health outcomes. The benefits of physical activity occur in generally healthy people, in people at risk of developing chronic diseases, and in people with current chronic conditions or disabilities. A summary of the major research findings of the health benefits of physical activity include:

- Regular physical activity reduces the risk of many adverse health outcomes.
- Some physical activity is better than none.
- For most health outcomes, additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration.
- Most health benefits occur with at least 150 minutes a week of moderate-intensity physical activity, such as brisk walking. Additional benefits occur with more physical activity.
- Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial.
- Health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those in every studied racial and ethnic group.
- The health benefits of physical activity occur for people with disabilities.
- The benefits of physical activity far outweigh the possibility of adverse outcomes.

Physical activity affects many health conditions, and the specific amounts and types of activity that benefit each condition vary. In developing public health guidelines, the challenge is to integrate scientific information across all health benefits and identify a critical range of physical activity that appears to have an effect across the health benefits. One consistent finding from research studies is that once the health benefits from physical activity begin to accrue, additional amounts of activity provide additional benefits.

Although some health benefits seem to begin with as little as 60 minutes (1 hour) a week, research shows that a total amount of 150 minutes (2 hours and 30 minutes) a week of moderate-intensity aerobic activity, such as brisk walking, consistently reduces the risk of many chronic diseases and other adverse health outcomes.

Examining the Relationship Between Physical Activity and Health

In many studies covering a wide range of issues, researchers have focused on exercise, as well as on the more broadly defined concept of physical activity. Exercise is a form of physical activity that is planned, structured, repetitive, and performed with the goal of improving health or fitness. So, although all exercise is physical activity, not all physical activity is exercise.

Studies clearly demonstrate that participating in regular physical activity provides many health benefits. Many conditions affected by physical activity occur with increasing age, such as heart disease and cancer. Reducing risk of these conditions may require years of participation in regular physical activity. However, other benefits, such as increased cardiorespiratory_fitness, increased muscular strength, and decreased depressive symptoms and blood pressure, require only a few weeks or months of participation in physical activity.

The health benefits of physical activity are seen in children and adolescents, young and middle-aged adults, older adults, women and men, people of different races and ethnicities, and people with disabilities and chronic conditions. The health benefits of physical activity are generally independent of body weight. Adults of all sizes and shapes gain health and fitness benefits by being habitually physically active. The benefits of physical activity also outweigh the risk of injury and sudden heart attacks, two concerns that prevent many people from becoming physically active. The following sections provide more detail on what is known from research studies about the specific health benefits of physical activity and how much physical activity is needed to get the health benefits.

Premature (early) death

- Strong scientific evidence shows that physical activity reduces the risk of premature death (dying earlier than the average age of death for a specific population group) from the leading causes of death, such as heart disease and some cancers, as well as from other causes of death. This effect is remarkable in two ways:
    - First, only a few lifestyle choices have as large an effect on mortality as physical activity. It has been estimated that people who are physically active for approximately 7 hours a week have a 40 percent lower risk of dying early than those who are active for less than 30 minutes a week.
    - Second, it is not necessary to do high amounts of activity or vigorous-intensity activity to reduce the risk of premature death. Studies show substantially lower risk when people do 150 minutes of at least moderate-intensity aerobic physical activity a week.
- Research clearly demonstrates the importance of avoiding inactivity. Even low amounts of physical activity reduce the risk of dying prematurely. The relative risk of dying prematurely continues to be

lower with higher levels of reported moderate- or vigorous-intensity leisure-time physical activity. All adults can gain this health benefit of physical activity. Age, race, and ethnicity do not matter. Men and women younger than 65 years as well as older adults have lower rates of early death when they are physically active than when they are inactive. Physically active people of all body weights (normal weight, overweight, obese) also have lower rates of early death than do inactive people.

Cardiorespiratory Health

- The benefits of physical activity on cardiorespiratory health are some of the most extensively documented of all the health benefits. Cardiorespiratory health involves the health of the heart, lungs, and blood vessels.

- Heart diseases and stroke are two of the leading causes of death in the United States. Risk factors that increase the likelihood of cardiovascular diseases include smoking, high blood pressure (called hypertension), type 2 diabetes, and high levels of certain blood lipids (such as low-density lipoprotein, or LDL, cholesterol). Low cardiorespiratory fitness also is a risk factor for heart disease.

- People who do moderate-or vigorous-intensity aerobic physical activity have a significantly lower risk of cardiovascular disease than do inactive people. Regularly active adults have lower rates of heart disease and stroke, and have lower blood pressure, better blood lipid profiles, and fitness. Significant reductions in risk of cardiovascular disease occur at activity levels equivalent to 150 minutes a week of moderate-intensity physical activity. Even greater benefits are seen with 200 minutes (3 hours and 20 minutes) a week. The evidence is strong that greater amounts of physical activity result in even further reductions in the risk of cardiovascular disease.

- Everyone can gain the cardiovascular health benefits of physical activity. The amount of physical activity that provides favorable cardiorespiratory health and fitness outcomes is similar for adults of various ages, including older people, as well as for adults of various races and ethnicities. Aerobic exercise also improves cardiorespiratory fitness in individuals with some disabilities, including people who have lost the use of one or both legs and those with multiple sclerosis, stroke, spinal cord injury, and cognitive disabilities.

- Moderate-intensity physical activity is safe for generally healthy women during pregnancy. It increases cardiorespiratory fitness without increasing the risk of early pregnancy loss, preterm delivery, or low birth weight. Physical activity during the postpartum period also improves cardiorespiratory fitness.

Metabolic Health

- Regular physical activity strongly reduces the risk of developing type 2 diabetes as well as the metabolic syndrome. The metabolic syndrome is defined as a condition in which people have some combination of high blood pressure, a large waistline (abdominal obesity), an adverse blood lipid profile (low levels of high-density lipoprotein [HDL] cholesterol, raised triglycerides), and impaired glucose tolerance.

- People who regularly engage in at least moderate-intensity aerobic activity have a significantly lower risk of developing type 2 diabetes than do inactive people. Although some experts debate the usefulness of defining the metabolic syndrome, good evidence exists that physical activity reduces the risk of having this condition, as defined in various ways. Lower rates of these conditions are seen with 120 to 150 minutes (2 hours to 2 hours and 30 minutes) a week of at least moderate-intensity aerobic activity. As with cardiovascular health, additional levels of physical activity seem to lower risk even

further. In addition, physical activity helps control blood glucose levels in persons who already have type 2 diabetes.

Obesity and Energy Balance

- Overweight and obesity occur when fewer calories are expended, including calories burned through physical activity, than are taken in through food and beverages. Physical activity and caloric intake both must be considered when trying to control body weight. Because of this role in energy balance, physical activity is a critical factor in determining whether a person can maintain a healthy body weight, lose excess body weight, or maintain successful weight loss. People vary a great deal in how much physical activity they need to achieve and maintain a healthy weight. Some need more physical activity than others to maintain a healthy body weight, to lose weight, or to keep weight off once it has been lost.

- Strong scientific evidence shows that physical activity helps people maintain a stable weight over time. However, the optimal amount of physical activity needed to maintain weight is unclear. People vary greatly in how much physical activity results in weight stability. Many people need more than the equivalent of 150 minutes of moderate-intensity activity a week to maintain their weight.

- Over short periods of time, such as a year, research shows that it is possible to achieve weight stability by doing the equivalent of 150 to 300 minutes (5 hours) a week of moderate-intensity walking at about a 4 mile-an-hour pace. Muscle-strengthening activities may help promote weight maintenance, although not to the same degree as aerobic activity.

- People who want to lose a substantial (more than 5 percent of body weight) amount of weight and people who are trying to keep a significant amount of weight off once it has been lost need a high amount of physical activity unless they also reduce their caloric intake. Many people need to do more than 300 minutes of moderate-intensity activity a week to meet weight-control goals.

Musculoskeletal Health

- Bones, muscles, and joints support the body and help it move. Healthy bones, joints, and muscles are critical to the ability to do daily activities without physical limitations.

- Preserving bone, joint, and muscle health is essential with increasing age. Studies show that the frequent decline in bone density that happens during aging can be slowed with regular physical activity. These effects are seen in people who participate in aerobic, muscle-strengthening, and bone-strengthening physical activity programs of moderate or vigorous intensity. The range of total physical activity for these benefits varies widely. Important changes seem to begin at 90 minutes a week and continue up to 300 minutes a week.

- Hip fracture is a serious health condition that can have life-changing negative effects for many older people. Physically active people, especially women, appear to have a lower risk of hip fracture than do inactive people. Research studies on physical activity to prevent hip fracture show that participating in 120 to 300 minutes a week of physical activity that is of at least moderate intensity is associated with a reduced risk. It is unclear, however, whether activity also lowers risk of fractures of the spine or other important areas of the skeleton.

- Regular physical activity also helps people with arthritis or other rheumatic conditions affecting the joints. Participation in 130 to 150 minutes (2 hours and 10 minutes to 2 hours and 30 minutes) a week

of moderate-intensity, low-impact physical activity improves pain management, function, and quality of life. Researchers don't yet know whether participation in physical activity, particularly at low to moderate intensity, reduces the risk of osteoarthritis. Very high levels of physical activity, however, may have extra risks. People who participate in very high levels of physical activity, such as elite or professional athletes, have a higher risk of hip and knee osteoarthritis, mostly due to the risk of injury involved in competing in some sports.

- Progressive muscle-strengthening activities increase or preserve muscle mass, strength, and power. Higher amounts (through greater frequency or higher weights) improve muscle function to a greater degree. Improvements occur in younger and older adults. Resistance exercises also improve muscular strength in persons with such conditions as stroke, multiple sclerosis, cerebral palsy, spinal cord injury, and cognitive disability. Though it doesn't increase muscle mass in the same way that muscle-strengthening activities do, aerobic activity may also help slow the loss of muscle with aging.

Functional Ability and Fall Prevention

- Functional ability is the capacity of a person to perform tasks or behaviors that enable him or her to carry out everyday activities, such as climbing stairs or walking on a sidewalk. Functional ability is key to a person's ability to fulfill basic life roles, such as personal care, grocery shopping, or playing with the grandchildren. Loss of functional ability is referred to as functional limitation.

- Middle-aged and older adults who are physically active have lower risk of functional limitations than do inactive adults. It appears that greater physical activity levels can further reduce risk of functional limitations.

- Older adults who already have functional limitations also benefit from regular physical activity. Typically, studies of physical activity in adults with functional limitations tested a combination of aerobic and muscle-strengthening activities, making it difficult to assess the relative importance of each type of activity. However, both types of activity appear to provide benefit.

- In older adults at risk of falls, strong evidence shows that regular physical activity is safe and reduces this risk. Reduction in falls is seen for participants in programs that include balance and moderate-intensity muscle-strengthening activities for 90 minutes a week plus moderate-intensity walking for about an hour a week. It's not known whether different combinations of type, amount, or frequency of activity can reduce falls to a greater degree. Tai chi exercises also may help prevent falls.

Cancer

- Physically active people have a significantly lower risk of colon cancer than do inactive people, and physically active women have a significantly lower risk of breast cancer. Research shows that a wide range of moderate-intensity physical activity—between 210 and 420 minutes a week (3 hours and 30 minutes to 7 hours)—is needed to significantly reduce the risk of colon and breast cancer; currently, 150 minutes a week does not appear to provide a major benefit. It also appears that greater amounts of physical activity lower risks of these cancers even further, although exactly how much lower is not clear.

- Although not definitive, some research suggests that the risk of endometrial cancer in women and lung cancers in men and women also may be lower among those who are regularly active compared to those who are inactive.

- Finally, cancer survivors have a better quality of life and improved physical fitness if they are physically active, compared to survivors who are inactive.

Mental Health

- Physically active adults have lower risk of depression and cognitive decline (declines with aging in thinking, learning, and judgment skills). Physical activity also may improve the quality of sleep. Whether physical activity reduces distress or anxiety is currently unclear.

- Mental health benefits have been found in people who do aerobic or a combination of aerobic and muscle-strengthening activities 3 to 5 days a week for 30 to 60 minutes at a time. Some research has shown that even lower levels of physical activity also may provide some benefits.

Adverse Events

- Some people hesitate to become active or increase their level of physical activity because they fear getting injured or having a heart attack. Studies of generally healthy people clearly show that moderate-intensity physical activity, such as brisk walking, has a low risk of such adverse events.

- The risk of musculoskeletal injury increases with the total amount of physical activity. For example, a person who regularly runs 40 miles a week has a higher risk of injury than a person who runs 10 miles each week. However, people who are physically active may have fewer injuries from other causes, such as motor vehicle collisions or work-related injuries. Depending on the type and amount of activity that physically active people do, their overall injury rate may be lower than the overall injury rate for inactive people.

- Participation in contact or collision sports, such as soccer or football, has a higher risk of injury than participation in non-contact physical activity, such as swimming or walking. However, when performing the same activity, people who are less fit are more likely to be injured than people who are fitter.

- Cardiac events, such as a heart attack or sudden death during physical activity, are rare. However, the risk of such cardiac events does increase when a person suddenly becomes much more active than usual. The greatest risk occurs when an adult who is usually inactive engages in vigorous-intensity activity (such as shoveling snow). People who are regularly physically active have the lowest risk of cardiac events both while being active and overall.

- The bottom line is that the health benefits of physical activity far outweigh the risks of adverse events for almost everyone.

Active Adults (Ages 18-64)

Adults who are physically active are healthier and less likely to develop many chronic diseases than adults who are inactive. They also have better fitness, including a healthier body size and composition. These benefits are gained by men and women and people of all races and ethnicities who have been studied. Adults gain most of these health benefits when they do the equivalent of at least 150 minutes of moderate-intensity aerobic physical activity (2 hours and 30 minutes) each week.

Adults gain additional and more extensive health and fitness benefits with even more physical activity. Muscle-strengthening activities also provide health benefits and are an important part of an adult's overall physical

activity plan. This section provides guidance for most men and women aged 18 to 64 years, and focuses on physical activity beyond baseline activity (the usual light or sedentary activities of daily living).

EXPLAINING THE GUIDELINES

The Guidelines for adults focus on two types of activity: aerobic and muscle-strengthening.

- **Aerobic Activity**

  - Aerobic activities, also called endurance activities, are physical activities in which people move their large muscles in a rhythmic manner for a sustained period. Running, brisk walking, bicycling, playing basketball, dancing, and swimming are all examples of aerobic activities. Aerobic activity makes a person's heart beat more rapidly to meet the demands of the body's movement. Over time, regular aerobic activity makes the heart and cardiovascular system stronger and fitter.

  - The purpose of the aerobic activity does not affect whether it counts toward meeting the Guidelines. For example, physically active occupations can count toward meeting the Guidelines, as can active transportation choices (walking or bicycling). All types of aerobic activities can count as long as they are of sufficient intensity and duration. Time spent in muscle-strengthening activities does not count toward the aerobic activity guidelines. When putting the Guidelines into action, it's important to consider the total amount of activity, as well as how often to be active, for how long, and at what intensity.

  - How Much Total Activity a Week?

    - ✓ When adults do the equivalent of 150 minutes of moderate-intensity aerobic activity each week, the benefits are *substantial.* These benefits include lower risk of premature death, coronary heart disease, stroke, hypertension, type 2 diabetes, and depression.
    - ✓ Not all health benefits of physical activity occur at 150 minutes a week. As a person moves from 150 minutes a week toward 300 minutes (5 hours) a week, he or she gains *additional* health benefits. Additional benefits include lower risk of colon and breast cancer and prevention of unhealthy weight gain.
    - ✓ Also, as a person moves from 150 minutes a week toward 300 minutes a week, the benefits that occur at 150 minutes a week become *more extensive.* For example, a person who does 300 minutes a week has an even lower risk of heart disease or diabetes than a person who does 150 minutes a week.
    - ✓ The benefits continue to increase when a person does more than the equivalent of 300 minutes a week of moderate-intensity aerobic activity. For example, a person who does 420 minutes (7 hours) a week has an even lower risk of premature death than a person who does 150 to 300 minutes a week. Current science does not allow identifying an upper limit of total activity above which there are no additional health benefits.

  - How Many Days a Week and for How Long?

    - ✓ Aerobic physical activity should preferably be spread throughout the week. Research studies consistently show that activity performed on at least 3 days a week produces

health benefits. Spreading physical activity across at least 3 days a week may help to reduce the risk of injury and avoid excessive fatigue.

- ✓ Both moderate- and vigorous-intensity aerobic activity should be performed in episodes of at least 10 minutes. Episodes of this duration are known to improve cardiovascular fitness and some risk factors for heart disease and type 2 diabetes.

- How Intense?

  - ✓ The Guidelines for adults focus on two levels of intensity: moderate-intensity activity and vigorous-intensity activity. To meet the Guidelines, adults can do either moderate-intensity or vigorous-intensity aerobic activities, or a combination of both. It takes less time to get the same benefit from vigorous-intensity activities as from moderate-intensity activities. A general rule of thumb is that 2 minutes of moderate-intensity activity counts the same as 1 minute of vigorous-intensity activity. For example, 30 minutes of moderate-intensity activity a week is roughly the same as 15 minutes of vigorous-intensity activity.
  - ✓ There are two ways to track the intensity of aerobic activity: absolute intensity and relative intensity.
    - Absolute intensity is the amount of energy expended per minute of activity. The energy expenditure of light-intensity activity, for example, is 1.1 to 2.9 times the amount of energy expended when a person is at rest. Moderate-intensity activities expend 3.0 to 5.9 times the amount of energy expended at rest. The energy expenditure of vigorous-intensity activities is 6.0 or more times the energy expended at rest.
    - Relative intensity is the level of effort required to do an activity. Less fit people generally require a higher level of effort than fitter people to do the same activity. Relative intensity can be estimated using a scale of 0 to 10, where sitting is 0 and the highest level of effort possible is 10. Moderate-intensity activity is a 5 or 6. Vigorous-intensity activity is a 7 or 8.
  - ✓ The Guidelines for adults refer to absolute intensity because most studies demonstrating lower risks of clinical events (for example, premature death, cardiovascular disease, type 2 diabetes, cancer) have focused on measuring absolute intensity. That is, the Guidelines are based on the absolute amount of energy expended in physical activity that is associated with health benefits. Either absolute or relative intensity can be used to monitor progress in meeting the Guidelines.
  - ✓ When using relative intensity, people pay attention to how physical activity affects their heart rate and breathing. As a rule of thumb, a person doing moderate-intensity aerobic activity can talk, but not sing, during the activity. A person doing vigorous-intensity activity cannot say more than a few words without pausing for a breath.

- **Muscle-Strengthening Activity**

  - Muscle-strengthening activities provide additional benefits not found with aerobic activity. The benefits of muscle-strengthening activity include increased bone strength and muscular fitness. Muscle-strengthening activities can also help maintain muscle mass during a program of weight loss.

  - Muscle-strengthening activities make muscles do more work than they are accustomed to doing. That is, they overload the muscles. Resistance training, including weight training, is a

familiar example of muscle-strengthening activity. Other examples include working with resistance bands, doing calisthenics that use body weight for resistance (such as push-ups, pull-ups, and sit-ups), carrying heavy loads, and heavy gardening (such as digging or hoeing).

- Muscle-strengthening activities count if they involve a moderate to high level of intensity or effort and work the major muscle groups of the body: the legs, hips, back, chest, abdomen, shoulders, and arms. Muscle-strengthening activities for all the major muscle groups should be done at least 2 days a week.

- No specific amount of time is recommended for muscle strengthening, but muscle-strengthening exercises should be performed to the point at which it would be difficult to do another repetition without help. When resistance training is used to enhance muscle strength, one set of 8 to 12 repetitions of each exercise is effective, although two or three sets may be more effective. Development of muscle strength and endurance is progressive over time. Increases in the amount of weight or the days a week of exercising will result in stronger muscles.

MEETING THE GUIDELINES

- Adults have many options for becoming physically active, increasing their physical activity, and staying active throughout their lives. In deciding how to meet the Guidelines, adults should think about how much physical activity they're already doing and how physically fit they are. Personal health and fitness goals are also important to consider. Examples provided later in the chapter illustrate how to include these goals in decisions to be active.

- In general, healthy men and women who plan prudent increases in their weekly amounts of physical activity do not need to consult a health-care provider before becoming active.

Inactive Adults

- Inactive adults or those who don't yet do 150 minutes of physical activity a week should work gradually toward this goal. The initial amount of activity should be at a light or moderate intensity, for short periods of time, with the sessions spread throughout the week. The good news is that "some is better than none."

- People gain some health benefits even when they do as little as 60 minutes a week of moderate-intensity aerobic physical activity.

- To reduce risk of injury, it is important to increase the amount of physical activity gradually over a period of weeks to months. For example, an inactive person could start with a walking program consisting of 5 minutes of slow walking several times each day, 5 to 6 days a week. The length of time could then gradually be increased to 10 minutes per session, 3 times a day, and the walking speed could be increased slowly.

- Muscle-strengthening activities should also be gradually increased over time. Initially, these activities can be done just 1 day a week starting at a light or moderate level of effort. Over time, the number of days a week can be increased to 2, and then possibly to more than 2. Each week, the level of effort (intensity) can be increased slightly until it becomes moderate to high.

Active Adults

- Adults who are already active and meet the minimum Guidelines (the equivalent of 150 minutes of moderate-intensity aerobic activity every week) can gain additional and more extensive health and fitness benefits by increasing physical activity above this amount. Most American adults should increase their aerobic activity to exceed the minimum level and move toward 300 minutes a week. Adults should also do muscle-strengthening activities on at least 2 days each week.

- One time-efficient way to achieve greater fitness and health goals is to substitute vigorous-intensity aerobic activity for some moderate-intensity activity. Using the 2-to-1 rule of thumb, doing 150 minutes of vigorous-intensity aerobic activity a week provides about the same benefits as 300 minutes of moderate-intensity activity.

- Adults are encouraged to do a variety of activities, as variety probably reduces risk of injury caused by doing too much of one kind of activity (this is called an overuse injury).

Highly Active Adults

- Adults who are highly active should maintain their activity level. These adults are also encouraged to do a variety of activities.

SPECIAL CONSIDERATIONS

Flexibility Activities

- Flexibility is an important part of physical fitness. Some types of physical activity, such as dancing, require more flexibility than others. Stretching exercises are effective in increasing flexibility, and thereby can allow people to more easily do activities that require greater flexibility. For this reason, flexibility activities are an appropriate part of a physical activity program, even though they have no known health benefits and it is unclear whether they reduce risk of injury. Time spent doing flexibility activities by themselves does not count toward meeting the aerobic or muscle-strengthening Guidelines.

- The health benefits of physical activity are generally independent of body weight. The good news for people needing to lose weight is that regular physical activity provides major health benefits, no matter how their weight changes over time.

Warm-up and Cool-down

- Warm-up and cool-down activities are an acceptable part of a person's physical activity plan. Commonly, the warm-up and cool-down involve doing an activity at a slower speed or lower intensity. A warm-up before moderate-or vigorous-intensity aerobic activity allows a gradual increase in heart rate and breathing at the start of the episode of activity. A cool-down after activity allows a gradual decrease at the end of the episode. Time spent doing warm-up and cool-down may count toward meeting the aerobic activity Guidelines if the activity is at least moderate intensity (for example, walking briskly as a warm-up before jogging). A warm-up for muscle-strengthening activity commonly involves doing exercises with lighter weight.

Physical Activity in a Weight-Control Plan

- Along with appropriate dietary intake, physical activity is an important part of maintaining healthy weight, losing weight, and keeping extra weight off once it has been lost. Physical activity also helps reduce abdominal fat and preserve muscle during weight loss. Adults should aim for a healthy, stable body weight. The amount of physical activity necessary to achieve this weight varies greatly from person to person.

- The first step in achieving or maintaining a healthy weight is to meet the minimum level of physical activity in the Guidelines. For some people this will result in a stable and healthy body weight, but for many it may not.

- People who are at a healthy body weight but slowly gaining weight can either gradually increase the level of physical activity (toward the equivalent of 300 minutes a week of moderate-intensity aerobic activity), or reduce caloric intake, or both, until their weight is stable. By regularly checking body weight, people can find the amount of physical activity that works for them

- Many adults will need to do more than the 150 minutes a week of moderate-intensity aerobic physical activity as part of a program to lose weight or keep it off. These adults should do more physical activity and/or further reduce their caloric intake. Some people will need to do the equivalent of 300 or more minutes of moderate-intensity physical activity a week to meet their weight-control goals. Combined with restricting caloric intake, these adults should gradually increase minutes or the intensity of aerobic physical activity per week, to the point at which the physical activity is effective in achieving a healthy weight.

- It is important to remember that all activities—both baseline and physical activity—"count" for energy balance. Active choices, such as taking the stairs rather than the elevator or adding short episodes of walking to the day, are examples of activities that can be helpful in weight control.

- For weight control, vigorous-intensity activity is far more time-efficient than moderate-intensity activity. For example, an adult who weighs 165 pounds (75 kg) will burn 560 calories from 150 minutes of brisk walking at 4 miles an hour (these calories are in addition to the calories normally burned by a body at rest). That person can burn the same number of additional calories in 50 minutes by running 5 miles at a 10 minutes-per-mile pace.

KEY GUIDELINES FOR ADULTS

- All adults should avoid inactivity. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits.
- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.
- For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate-and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount.
- Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

Achieving Target Levels of Physical Activity: The Possibilities Are Endless

These examples show how it's possible to meet the Guidelines by doing moderate-intensity or vigorous-intensity activity or a combination of both. Physical activity at this level provides substantial health benefits.

Ways to get the equivalent of 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic physical activity a week plus muscle-strengthening activities:

- Thirty minutes of brisk walking (moderate intensity) on 5 days, exercising with resistance bands (muscle strengthening) on 2 days;
- Twenty-five minutes of running (vigorous intensity) on 3 days, lifting weights on 2 days (muscle strengthening);
- Thirty minutes of brisk walking on 2 days, 60 minutes (1 hour) of social dancing (moderate intensity) on 1 evening, 30 minutes of mowing the lawn (moderate intensity) on 1 afternoon, heavy gardening (muscle strengthening) on 2 days;
- Thirty minutes of an aerobic dance class on 1 morning (vigorous intensity), 30 minutes of running on 1 day (vigorous intensity), 30 minutes of brisk walking on 1 day (moderate intensity), calisthenics (such as sit-ups, push-ups) on 3 days (muscle strengthening);
- Thirty minutes of biking to and from work on 3 days (moderate intensity), playing softball for 60 minutes on 1 day (moderate intensity), using weight machines on 2 days (muscle-strengthening on 2 days); and
- Forty-five minutes of doubles tennis on 2 days (moderate intensity), lifting weights after work on 1 day (muscle strengthening), hiking vigorously for 30 minutes and rock climbing (muscle strengthening) on 1 day.

Ways to be even more active

- For adults who are already doing at least 150 minutes of moderate-intensity physical activity, here are a few ways to do even more. Physical activity at this level has even greater health benefits.
- Forty-five minutes of brisk walking every day, exercising with resistance bands on 2 or 3 days;
- Forty-five minutes of running on 3 or 4 days, circuit weight training in a gym on 2 or 3 days;
- Thirty minutes of running on 2 days, 45 minutes of brisk walking on 1 day, 45 minutes of an aerobics and weights class on 1 day, 90 minutes (1 hour and 30 minutes) of social dancing on 1 evening, 30 minutes of mowing the lawn, plus some heavy garden work on 1 day;
- Ninety minutes of playing soccer on 1 day, brisk walking for 15 minutes on 3 days, lifting weights on 2 days; and
- Forty-five minutes of stationary bicycling on 2 days, 60 minutes of basketball on 2 days, calisthenics on 3 days.

ACTIVE OLDER ADULTS (AGES 65+)

Regular physical activity is essential for healthy aging. Adults aged 65 years and older gain substantial health benefits from regular physical activity and these benefits continue to occur throughout their lives. Promoting physical activity for older adults is especially important because this population is the least physically active of any age group. Older adults are a varied group. Most, but not all, have one or more chronic conditions, and these conditions vary in type and severity. All have experienced a loss of physical fitness with age, some more than others. This diversity means that some older adults can run several miles, while others struggle to walk several blocks. This section provides guidance about physical activity for adults aged 65 years and older. It focuses on physical activity beyond baseline activity. The Guidelines seek to help older adults select types and amounts of physical activity appropriate for their abilities. The Guidelines for older adults are also appropriate for adults younger than age 65 who have chronic conditions and those with a low level of fitness.

EXPLAINING THE GUIDELINES

Like the Guidelines for other adults, those for older adults mainly focus on two types of activity: aerobic and muscle-strengthening. In addition, these Guidelines discuss the addition of balance training for older adults at risk of falls. Each type provides important health benefits.

- **Aerobic Activity**
  - People doing aerobic activities move large muscles in a rhythmic manner for a sustained period. Brisk walking, jogging, biking, dancing, and swimming are all examples of aerobic activities. This type of activity is also called endurance activity.
  - Aerobic activity makes a person's heart beat more rapidly to meet the demands of the body's movement.
  - Over time, regular aerobic activity makes the heart and cardiovascular system stronger and fitter.
  - When putting the Guidelines into action, it's important to consider the total amount of activity, as well as how often to be active, for how long, and at what intensity.
  - How much total activity a week?
    - ✓ Older adults should aim to do at least 150 minutes (2 hours and 30 minutes) of moderate-intensity physical activity a week, or an equivalent amount (75 minutes or 1 hour and 15 minutes) of vigorous-intensity activity. Older adults can also do an equivalent amount of activity by combining moderate- and vigorous-intensity activity. As is true for younger people, greater amounts of physical activity provide additional and more extensive health benefits to people aged 65 years and older.
    - ✓ No matter what its purpose—walking the dog, taking a dance or exercise class, or bicycling to the store—aerobic activity of all types counts toward the Guidelines.
  - How many days a week and for how long?

- ✓ Aerobic physical activity should be spread throughout the week. Research studies consistently show that activity performed on at least 3 days a week produces health benefits. Spreading physical activity across at least 3 days a week may help to reduce the risk of injury and avoid excessive fatigue.

- ✓ Episodes of aerobic activity count toward meeting the Guidelines if they last at least 10 minutes and are performed at moderate or vigorous intensity. These episodes can be divided throughout the day or week. For example, a person who takes a brisk 15-minute walk twice a day on every day of the week would easily meet the minimum Guideline for aerobic activity.

- o How intense?

  - ✓ Older adults can meet the Guidelines by doing relatively moderate-intensity activity, relatively vigorous-intensity activity, or a combination of both. Time spent in light activity (such as light housework) and sedentary activities (such as watching TV) do not count.

  - ✓ The relative intensity of aerobic activity is related to a person's level of cardiorespiratory fitness.

  - ✓ Moderate-intensity activity requires a medium level of effort. On a scale of 0 to 10, where sitting is 0 and the greatest effort possible is 10, moderate-intensity activity is a 5 or 6 and produces noticeable increases in breathing rate and heart rate.

  - ✓ Vigorous-intensity activity is a 7 or 8 on this scale and produces large increases in a person's breathing and heart rate.

  - ✓ A general rule of thumb is that 2 minutes of moderate-intensity activity count the same as 1 minute of vigorous-intensity activity. For example, 30 minutes of moderate-intensity activity a week is roughly same as 15 minutes of vigorous-intensity activity.

- **Muscle-Strengthening Activities**

  - o At least 2 days a week, older adults should do muscle-strengthening activities that involve all the major muscle groups. These are the muscles of the legs, hips, chest, back, abdomen, shoulders, and arms.

  - o Muscle-strengthening activities make muscles do more work than they are accustomed to during activities of daily life. Examples of muscle-strengthening activities include lifting weights, working with resistance bands, doing calisthenics using body weight for resistance (such as push-ups, pull-ups, and sit-ups), climbing stairs, carrying heavy loads, and heavy gardening.

  - o Muscle-strengthening activities count if they involve a moderate to high level of intensity, or effort, and work the major muscle groups of the body. Whatever the reason for doing it, any muscle-strengthening activity counts toward meeting the Guidelines. For example, muscle-strengthening activity done as part of a therapy or rehabilitation program can count.

  - o No specific amount of time is recommended for muscle strengthening, but muscle-strengthening exercises should be performed to the point at which it would be difficult to do another repetition without help. When resistance training is used to enhance muscle strength, one set of 8 to 12 repetitions of each exercise is effective, although two or three sets may be more effective.

Development of muscle strength and endurance is progressive over time. This means that gradual increases in the amount of weight or the days per week of exercise will result in stronger muscles.

- **Balance Activities for Older Adults at Risk of Falls**
  - Older adults are at increased risk of falls if they have had falls in the recent past or have trouble walking. In older adults at increased risk of falls, strong evidence shows that regular physical activity is safe and reduces the risk of falls. Reduction in falls is seen for participants in programs that include balance and moderate-intensity muscle-strengthening activities for 90 minutes (1 hour and 30 minutes) a week plus moderate-intensity walking for about 1 hour a week. Preferably, older adults at risk of falls should do balance training 3 or more days a week and do standardized exercises from a program demonstrated to reduce falls. Examples of these exercises include backward walking, sideways walking, heel walking, toe walking, and standing from a sitting position. The exercises can increase in difficulty by progressing from holding onto a stable support (like furniture) while doing the exercises to doing them without support. It's not known whether different combinations of type, amount, or frequency of activity can reduce falls to a greater degree. Tai chi exercises also may help prevent falls.

MEETING THE GUIDELINES

Older adults have many ways to live an active lifestyle that meets the Guidelines. Many factors influence decisions to be active, such as personal goals, current physical activity habits, and health and safety considerations.

Healthy older adults generally do not need to consult a health-care provider before becoming physically active. However, health-care providers can help people attain and maintain regular physical activity by providing advice on appropriate types of activities and ways to progress at a safe and steady pace.

Adults with chronic conditions should talk with their health-care provider to determine whether their conditions limit their ability to do regular physical activity in any way. Such a conversation should also help people learn about appropriate types and amounts of physical activity.

Inactive Older Adults

Older adults should increase their amount of physical activity gradually. It can take months for those with a low level of fitness to gradually meet their activity goals. To reduce injury risk, inactive or insufficiently active adults should avoid vigorous aerobic activity at first. Rather, they should gradually increase the number of days a week and duration of moderate-intensity aerobic activity. Adults with a very low level of fitness can start out with episodes of activity less than 10 minutes and slowly increase the minutes of light-intensity aerobic activity, such as light-intensity walking.

Older adults who are inactive or who don't yet meet the Guidelines should aim for at least 150 minutes a week of relatively moderate-intensity physical activity. Getting at least 30 minutes of relatively moderate-intensity physical activity on 5 or more days each week is a reasonable way to meet these Guidelines. Doing muscle-strengthening activity on 2 or 3 nonconsecutive days each week is also an acceptable and appropriate goal for many older adults.

Active Older Adults

Older adults who are already active and meet the Guidelines can gain additional and more extensive health benefits by moving beyond the 150-minute-a-week minimum to 300 or more minutes a week of relatively moderate-intensity aerobic activity. Muscle-strengthening activities should also be done at least 2 days a week.

Older Adults With Chronic Conditions

Older adults who have chronic conditions that prevent them from doing the equivalent of 150 minutes of moderate-intensity aerobic activity a week should set physical activity goals that meet their abilities. They should talk with their health-care provider about setting physical activity goals. They should avoid an inactive lifestyle. Even 60 minutes (1 hour) a week of moderate-intensity aerobic activity provides some health benefits.

SPECIAL CONSIDERATIONS

Doing a Variety of Activities, Including Walking

In working toward meeting the Guidelines, older adults are encouraged to do a variety of activities. This approach can make activity more enjoyable and may reduce the risk of overuse injury.

Older adults also should strongly consider walking as one good way to get aerobic activity. Many studies show that walking has health benefits, and it has a low risk of injury. It can be done year-round and in many settings.

Physical Activity for Older Adults Who Have Functional Limitations

When a person has lost some ability to do a task of everyday life, such as climbing stairs, the person has a functional limitation. In older adults with existing functional limitations, scientific evidence indicates that regular physical activity is safe and helps improve functional ability.

Resuming Activity After an Illness or Injury

Older adults may have to take a break from regular physical activity because of illness or injury, such as the flu or a muscle strain. If these interruptions occur, older adults should resume activity at a lower level and gradually work back up to their former level of activity.

Flexibility, Warm-up, and Cool-down

Older adults should maintain the flexibility necessary for regular physical activity and activities of daily life. When done properly, stretching activities increase flexibility. Although these activities alone have no known health benefits and have not been demonstrated to reduce risk of activity-related injuries, they are an appropriate component of a physical activity program. However, time spent doing flexibility activities by themselves does not count toward meeting aerobic or muscle-strengthening Guidelines.

Research studies of effective exercise programs typically include warm-up and cool-down activities. Warm-up and cool-down activities before and after physical activity can also be included as part of a personal program. A warm-up before moderate- or vigorous-intensity aerobic activity allows a gradual increase in heart rate and breathing at the start of the episode of activity. A cool-down after activity allows a gradual decrease at the end

of the episode. Time spent doing warm-up and cool-down may count toward meeting the aerobic activity Guidelines if the activity is at least moderate intensity (for example, walking briskly to warm-up for a jog). A warm-up for muscle-strengthening activity commonly involves doing exercises with less weight than during the strengthening activity.

Physical Activity in a Weight-Control Plan

The amount of physical activity necessary to successfully maintain a healthy body weight depends on caloric intake and varies considerably among older adults. To achieve and maintain a healthy body weight, older adults should first do the equivalent of 150 minutes of moderate-intensity aerobic activity each week. If necessary, older adults should increase their weekly minutes of aerobic physical activity gradually over time and decrease caloric intake to a point where they can achieve energy balance and a healthy weight.

Some older adults will need a higher level of physical activity than others to maintain a healthy body weight. Some may need more than the equivalent of 300 minutes (5 hours) a week of moderate-intensity activity. It is possible to achieve this level of activity by gradually increasing activity over time.

Older adults who are capable of relatively vigorous-intensity activity and need a high level of physical activity to maintain a healthy weight should consider some relatively vigorous-intensity activity as a means of weight control. This approach is more time-efficient than doing only moderate-intensity activity. However, high levels of activity are not feasible for many older adults. These adults should achieve a level of physical activity that is sustainable and safe. If further weight loss is needed, these older adults should achieve energy balance by regulating caloric intake.
It is important to remember that all activities "count" for energy balance. Active choices, such as taking the stairs rather than the elevator or adding short episodes of walking to the day, are examples of activities that can be helpful in weight control.

Key Guidelines for Older Adults

The following Guidelines are the same for adults and older adults:

- All older adults should avoid inactivity. Some physical activity is better than none, and older adults who participate in any amount of physical activity gain some health benefits.
- For substantial health benefits, older adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.

- For additional and more extensive health benefits, older adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate-and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount.

- Older adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

The following Guidelines are just for older adults:

- When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow.
- Older adults should do exercises that maintain or improve balance if they are at risk of falling.
- Older adults should determine their level of effort for physical activity relative to their level of fitness.
- Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.

SAFE AND ACTIVE

Although physical activity has many health benefits, injuries and other adverse events do sometimes happen. The most common injuries affect the musculoskeletal system (the bones, joints, muscles, ligaments, and tendons). Other adverse events can also occur during activity, such as overheating and dehydration. On rare occasions, people have heart attacks during activity.

The good news is that scientific evidence strongly shows that physical activity is safe for almost everyone. Moreover, the health benefits of physical activity far outweigh the risks.

Still, people may hesitate to become physically active because of concern they'll get hurt. For these people, there is even more good news: They can take steps that are proven to reduce their risk of injury and adverse events.

The Guidelines in this section provide advice to help people do physical activity safely. Most advice applies to people of all ages. Specific guidance for particular age groups and people with certain conditions is also provided.

EXPLAINING THE GUIDELINES

Physical Activity Is Safe for Almost Everyone

Most people are not likely to be injured when doing moderate-intensity activities in amounts that meet the *Physical Activity Guidelines.* However, injuries and other adverse events do sometimes happen. The most common problems are musculoskeletal injuries. Even so, studies show that only one such injury occurs for every 1,000 hours of walking for exercise, and fewer than four injuries occur for every 1,000 hours of running.

Both physical fitness and total amount of physical activity affect risk of musculoskeletal injuries. People who are physically fit have a lower risk of injury than people who are not. People who do more activity generally have a higher risk of injury than people who do less activity. So what should people do if they want to be active and safe? The best strategies are to:

- Be regularly physically active to increase physical fitness; and
- Follow the other guidance in this section (especially increasing physical activity gradually over time) to minimize the injury risk from doing medium to high amounts of activity.

Following these strategies may reduce *overall* injury risk. Active people are more likely to have an activity-related injury than inactive people. But they appear less likely to have non-activity-related injuries, such as work-related injuries or injuries that occur around the home or from motor vehicle crashes.

Choose Appropriate Types and Amounts of Activity

People can reduce their risk of injury by choosing appropriate types of activity.

Walking for exercise, gardening or yard work, bicycling or exercise cycling, dancing, swimming, and golf are activities with the lowest injury rates. In the amounts commonly done by adults, walking (a moderate-intensity and low-impact activity) has a third or less of the injury risk of running (a vigorous-intensity and higher impact activity). The risk of injury for a type of physical activity can also differ according to the purpose of the activity. For example, recreational bicycling or bicycling for transportation leads to fewer injuries than training for and competing in bicycle races.

People who have had a past injury are at risk of injuring that body part again. The risk of injury can be reduced by performing appropriate amounts of activity and setting appropriate personal goals. Performing a variety of different physical activities may also reduce the risk of overuse injury.

Increase Physical Activity Gradually Over Time

Scientific studies indicate that the risk of injury to bones, muscles, and joints is directly related to the gap between a person's usual level of activity and a new level of activity. The size of this gap is called the amount of overload. Creating a small overload and waiting for the body to adapt and recover reduces the risk of injury. When amounts of physical activity need to be increased to meet the Guidelines or personal goals, physical activity should be increased gradually, over time, no matter what the person's current level of physical activity.

Scientists have not established a standard for how to gradually increase physical activity over time. The following recommendations give general guidance for inactive people and those with low levels of physical activity on how to increase physical activity:

- Use relative intensity (intensity of the activity relative to a person's fitness) to guide the level of effort for aerobic activity.
- Generally start with relatively moderate-intensity aerobic activity. Avoid relatively vigorous-intensity activity, such as shoveling snow or running. Adults with a low level of fitness may need to start with light activity, or a mix of light- to moderate-intensity activity.
- First, increase the number of minutes per session (duration), and the number of days per week (frequency) of moderate-intensity activity. Later, if desired, increase the intensity.
- Pay attention to the relative size of the increase in physical activity each week, as this is related to injury risk. For example, a 20-minute increase each week is safer for a person who does 200 minutes a week of walking (a 10 percent increase), than for a person who does 40 minutes a week (a 50 percent increase).
- The available scientific evidence suggests that adding a small and comfortable amount of light- to moderate-intensity activity, such as 5 to15 minutes of walking per session, 2 to 3 times a week, to one's usual activities has a low risk of musculoskeletal injury and no known risk of severe cardiac events. Because this range is rather wide, people should consider three factors in individualizing their rate of increase: age, level of fitness, and prior experience.

Age

- The amount of time required to adapt to a new level of activity probably depends on age. Youth and young adults probably can safely increase activity by small amounts every week or 2. Older adults appear to require more time to adapt to a new level of activity, in the range of 2 to 4 weeks.

Level of Fitness

- Less fit adults are at higher risk of injury when doing a given amount of activity, compared to fitter adults. Slower rates of increase over time may reduce injury risk. This guidance applies to overweight and obese adults, as they are commonly less physically fit.

Prior Experience

- People can use their experience to learn to increase physical activity over time in ways that minimize the risk of overuse injury. Generally, if an overuse injury occurred in the past with a certain rate of progression, a person should increase activity more slowly the next time.

Take Appropriate Precautions

Taking appropriate precautions means using the right gear and equipment, choosing safe environments in which to be active, following rules and policies, and making sensible choices about how, when, and where to be active.

Use Protective Gear and Appropriate Equipment

Using personal protective gear can reduce the frequency of injury. Personal protective gear is something worn by a person to protect a specific body part. Examples include helmets, eyewear and goggles, shin guards, elbow and knee pads, and mouth guards.

Using appropriate sports equipment can also reduce risk of injury. Sports equipment refers to sport or activity-specific tools, such as balls, bats, sticks, and shoes.

For the most benefit, protective equipment and gear should be:

- The right equipment for the activity;
- Appropriately fitted;
- Appropriately maintained; and
- Used consistently and correctly.

Be Active in Safe Environments

People can reduce their injury risks by paying attention to the places they choose to be active. To help themselves stay safe, people can look for:

- Physical separation from motor vehicles, such as sidewalks, walking paths, or bike lanes;
- Neighborhoods with traffic-calming measures that slow down traffic;
- Places to be active that are well-lighted, where other people are present, and that are well-maintained (no litter, broken windows);

- Shock-absorbing surfaces on playgrounds;
- Well-maintained playing fields and courts without holes or obstacles;
- Breakaway bases at baseball and softball fields; and
- Padded and anchored goals and goal posts at soccer and football fields.

Follow Rules and Policies That Promote Safety

Rules, policies, legislation, and laws are potentially the most effective and wide-reaching way to reduce activity-related injuries. To get the benefit, individuals should look for and follow these rules, policies, and laws. For example, policies that promote the use of bicycle helmets reduce the risk of head injury among cyclists. Rules against diving into shallow water at swimming pools prevent head and neck injuries.

Make Sensible Choices About How, When, and Where To Be Active

A person's choices can obviously influence the risk of adverse events. By making sensible choices, injuries and adverse events can be prevented. Consider weather conditions, such as extremes of heat and cold. For example, during very hot and humid weather, people lessen the chances of dehydration and heat stress by:

- Exercising in the cool of early morning as opposed to mid-day heat;
- Switching to indoor activities (playing basketball in the gym rather than on the playground);
- Changing the type of activity (swimming rather than playing soccer);
- Lowering the intensity of activity (walking rather than running); and
- Paying close attention to rest, shade, drinking enough fluids, and other ways to minimize effects of heat.

Exposure to air pollution is associated with several adverse health outcomes, including asthma attacks and abnormal heart rhythms. People who can modify the location or time of exercise may wish to reduce these risks by exercising away from heavy traffic and industrial sites, especially during rush hour or times when pollution is known to be high. However, current evidence indicates that the benefits of being active, even in polluted air, outweigh the risk of being inactive.

Advice From Health-Care Providers

The protective value of a medical consultation for persons with or without chronic diseases who are interested in increasing their physical activity level is not established. People without diagnosed chronic conditions (such as diabetes, heart disease, or osteoarthritis) and who do not have symptoms (such as chest pain or pressure, dizziness, or joint pain) do not need to consult a health-care provider about physical activity.

Inactive people who gradually progress over time to relatively moderate-intensity activity have no known risk of sudden cardiac events, and very low risk of bone, muscle, or joint injuries. A person who is habitually active with moderate-intensity activity can gradually increase to vigorous intensity without needing to consult a health-care provider. People who develop new symptoms when increasing their levels of activity should consult a health-care provider.

Health-care providers can provide useful personalized advice on how to reduce risk of injuries. For people who wish to seek the advice of a health-care provider, it is particularly appropriate to do so when contemplating vigorous-intensity activity, because the risks of this activity are higher than the risks of moderate-intensity activity.

The choice of appropriate types and amounts of physical activity can be affected by chronic conditions. People with symptoms or known chronic conditions should be under the regular care of a health-care provider. In consultation with their provider, they can develop a physical activity plan that is appropriate for them. People with chronic conditions typically find that moderate-intensity activity is safe and beneficial. However, they may need to take special precautions. For example, people with diabetes need to pay special attention to blood sugar control and proper footwear during activity.

Women who are pregnant and those who've recently had a baby should be under the regular care of a health-care provider. Moderate-intensity physical activity is generally safe for women with uncomplicated pregnancies, but women should talk with their provider about how to adjust the amounts and types of activity while they are pregnant and right after the baby's birth.

During pregnancy, women should avoid:

- Doing activities that involve lying on their back after the first trimester of pregnancy; and
- Doing activities with high risk of falling or abdominal trauma, including contact or collision sports, such as horseback riding, soccer, basketball, and downhill skiing.

Key Guidelines for Safe Physical Activity

To do physical activity safely and reduce risk of injuries and other adverse events, people should:

- Understand the risks and yet be confident that physical activity is safe for almost everyone.
- Choose to do types of physical activity that are appropriate for their current fitness level and health goals, because some activities are safer than others.
- Increase physical activity gradually over time whenever more activity is necessary to meet guidelines or health goals. Inactive people should "start low and go slow" by gradually increasing how often and how long activities are done.
- Protect themselves by using appropriate gear and sports equipment, looking for safe environments, following rules and policies, and making sensible choices about when, where, and how to be active.
- Be under the care of a health-care provider if they have chronic conditions or symptoms. People with chronic conditions and symptoms should consult their health-care provider about the types and amounts of activity appropriate for them.

Additional Considerations for Some Adults

All Americans should be physically active to improve overall health and fitness and to prevent many adverse health outcomes. Most Americans should follow the Guidelines of the adult or older adult sections, depending upon their age. However, some people have conditions that raise special issues about recommended types and amounts of physical activity. This section provides guidance on physical activity for healthy women who

are pregnant and for people with disabilities. This section also affirms and illustrates how physical activity is generally appropriate for adults with chronic conditions by considering three groups of adults:

- Adults with osteoarthritis;
- Adults with type 2 diabetes; and
- Adults who are cancer survivors.

Physical Activity for Women During Pregnancy and the Postpartum Period

Physical activity during pregnancy benefits a woman's overall health. For example, moderate-intensity physical activity by healthy women during pregnancy maintains or increases cardiorespiratory fitness.

Strong scientific evidence shows that the risks of moderate-intensity activity done by healthy women during pregnancy are very low, and do not increase risk of low birth weight, preterm delivery, or early pregnancy loss. Some evidence suggests that physical activity reduces the risk of pregnancy complications, such as preeclampsia and gestational diabetes, and reduces the length of labor, but this evidence is not conclusive.

During a normal postpartum period, regular physical activity continues to benefit a woman's overall health. Studies show that moderate-intensity physical activity during the period following the birth of a child increases a woman's cardiorespiratory fitness and improves her mood. Such activity does not appear to have adverse effects on breast milk volume, breast milk composition, or infant growth.

Physical activity also helps women achieve and maintain a healthy weight during the postpartum period, and when combined with caloric restriction, helps promote weight loss.

Explaining the Guidelines

Women who are pregnant should be under the care of a health-care provider with whom they can discuss how to adjust amounts of physical activity during pregnancy and the postpartum period. Unless a woman has medical reasons to avoid physical activity during pregnancy, she can begin or continue moderate-intensity aerobic physical activity during her pregnancy and after the baby is born.

When beginning physical activity during pregnancy, women should increase the amount gradually over time. The effects of vigorous-intensity aerobic activity during pregnancy have not been studied carefully, so there is no basis for recommending that women should begin vigorous-intensity activity during pregnancy.

Women who habitually do vigorous-intensity activity or high amounts of activity or strength training should continue to be physically active during pregnancy and after giving birth. They generally do not need to drastically reduce their activity levels, provided that they remain healthy and discuss with their health-care provider how to adjust activity levels during this time.

During pregnancy, women should avoid doing exercises involving lying on their back after the first trimester of pregnancy. They should also avoid doing activities that increase the risk of falling or abdominal trauma, including contact or collision sports, such as horseback riding, downhill skiing, soccer, and basketball.

Key Guidelines for Women During Pregnancy and the Postpartum Period

- Healthy women who are not already highly active or doing vigorous-intensity activity should get at least 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic activity per week during pregnancy and the postpartum period. Preferably, this activity should be spread throughout the week.

- Pregnant women who habitually engage in vigorous-intensity aerobic activity or are highly active can continue physical activity during pregnancy and the postpartum period, provided that they remain healthy and discuss with their health-care provider how and when activity should be adjusted over time.

Physical Activity for People With Disabilities

The benefits of physical activity for people with disabilities have been studied in diverse groups. These groups include stroke victims, people with spinal cord injury, multiple sclerosis, Parkinson's disease, muscular dystrophy, cerebral palsy, traumatic brain injury, limb amputations, mental illness, intellectual disability, and dementia.

Overall, the evidence shows that regular physical activity provides important health benefits for people with disabilities. The benefits include improved cardiovascular and muscle fitness, improved mental health, and better ability to do tasks of daily life. Sufficient evidence now exists to recommend that adults with disabilities should get regular physical activity.

Explaining the Guidelines

In consultation with their health-care providers, people with disabilities should understand how their disabilities affect their ability to do physical activity. Some may be capable of doing medium to high amounts of physical activity, and they should essentially follow the Guidelines for adults.

Some people with disabilities are not able to follow the Guidelines for adults. These people should adapt their physical activity program to match their abilities, in consultation with their health-care providers. Studies show that physical activity can be done safely when the program is matched to an individual's abilities.

Meeting the Guidelines

People with disabilities are encouraged to get advice from professionals with experience in physical activity and disability because matching activity to abilities can require modifying physical activity in many different ways. Some people with disabilities also need help with their exercise program. For example, some people may need supervision when performing muscle-strengthening activities, such as lifting weights.

Key Guidelines for Adults With Disabilities

- Adults with disabilities, who are able to, should get at least 150 minutes per week (2 hours and 30 minutes) of moderate-intensity, or 75 minutes (1 hour and 15 minutes) per week of vigorous-intensity aerobic activity, or an equivalent combination of moderate-and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.

- Adults with disabilities, who are able to, should also do muscle-strengthening activities of moderate or high intensity that involve all major muscle groups on 2 or more days per week, as these activities provide additional health benefits.

- When adults with disabilities are not able to meet the above Guidelines, they should engage in regular physical activity according to their abilities and should avoid inactivity.

- Adults with disabilities should consult their health-care providers about the amounts and types of physical activity that are appropriate for their abilities.

Physical Activity for People With Chronic Medical Conditions

Adults with chronic conditions should engage in regular physical activity because it can help promote their quality of life and reduce the risk of developing new conditions. The type and amount of physical activity should be determined by a person's abilities and the severity of the chronic condition. Three examples are provided below to illustrate the benefits of physical activity for persons with chronic conditions.

For many chronic conditions, physical activity provides therapeutic benefits and is part of recommended treatment for the condition. However, this section does not discuss therapeutic exercise or rehabilitation.

Example 1. Physical Activity for Adults With Osteoarthritis

Osteoarthritis is a common condition in older adults, and people can live many years with osteoarthritis. People with osteoarthritis are commonly concerned that physical activity can make their condition worse. Osteoarthritis can be painful and cause fatigue, making it hard to begin or maintain regular physical activity. Yet people with this condition should get regular physical activity to lower their risk of getting other chronic diseases, such as heart disease or type 2 diabetes, and to help maintain a healthy body weight.

Strong scientific evidence indicates that both aerobic activity and muscle-strengthening activity provide therapeutic benefits for persons with osteoarthritis. When done safely, physical activity does not make the disease or the pain worse. Studies show that adults with osteoarthritis can expect improvements in pain, physical function, quality of life, and mental health with regular physical activity.

People with osteoarthritis should match the type and amount of physical activity to their abilities and the severity of their condition. Most people can usually do moderate-intensity activity for 150 minutes (2 hours and 30 minutes) a week or more, and may choose to be active 3 to 5 days a week for 30 to 60 minutes per episode. Some people with arthritis can safely do more than 150 minutes of moderate-intensity activity each week and may be able to tolerate equivalent amounts of vigorous-intensity activity. Health-care providers typically counsel people with osteoarthritis to do activities that are low impact, not painful, and have low risk of joint injury. Swimming, walking, and strength-training are good examples of this type of activity.

Example 2. Physical Activity for Adults With Type 2 Diabetes

Physical activity in adults with type 2 diabetes shows how important it can be for people with a chronic disease to be active. Physical activity has important therapeutic effects in people with diabetes, but it is also routinely recommended to reduce risk of other diseases and help promote a healthy body weight.

For example, strong scientific evidence shows that physical activity protects against heart disease in people with diabetes. Moderate-intensity activity for about 150 minutes a week helps to substantially lower the risk of heart disease. A person who moves toward 300 minutes (5 hours) or more of moderate-intensity activity a week gets even greater benefit.

Adults with chronic conditions should work with their health-care providers to adapt physical activity so that it is appropriate for their condition. For example, people with diabetes must be careful to monitor their blood glucose and avoid injury to their feet.

Example 3. Physical Activity for Cancer Survivors

With modern treatments, many people with cancer can either be cured or survive for many years, living long enough to be at risk of other chronic conditions, such as high blood pressure or type 2 diabetes. Some cancer survivors are at risk of recurrence of the original cancer. Some have experienced side effects of the cancer treatment.

Like other adults, cancer survivors should engage in regular physical activity for its preventive benefits. Physical activity in cancer survivors can reduce risk of new chronic diseases. Further, studies suggest physically active adults with breast or colon cancer are less like to die prematurely or have a recurrence of the cancer. Physical activity may also play a role in reducing adverse effects of cancer treatment.

Cancer survivors, like other adults with chronic conditions, should consult their health-care providers to match their physical activity plan to their abilities and health status.

Key Messages for People With Chronic Medical Conditions

- Adults with chronic conditions obtain important health benefits from regular physical activity.
- When adults with chronic conditions do activity according to their abilities, physical activity is safe.
- Adults with chronic conditions should be under the care of health-care providers. People with chronic conditions and symptoms should consult their health-care providers about the types and amounts of activity appropriate for them.

DIETARY GUIDELINES FOR AMERICANS 2010

Eating and physical activity patterns that are focused on consuming fewer calories, making informed food choices, and being physically active can help people attain and maintain a healthy weight, reduce their risk of chronic disease, and promote overall health. The *Dietary Guidelines for Americans, 2010* (a copy of the entire document can be found at www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/PolicyDoc/PolicyDoc.pdf) exemplifies these strategies through recommendations that accommodate the food preferences, cultural traditions, and customs of the many and diverse groups who live in the United States.

By law (Public Law 101-445, Title III, 7 U.S.C. 5301 et seq.), *Dietary Guidelines for Americans* is reviewed, updated if necessary, and published every 5 years. The U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (HHS) jointly create each edition. *Dietary Guidelines for Americans, 2010* is based on the *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010* and consideration of Federal agency and public comments.

Dietary Guidelines recommendations traditionally have been intended for healthy Americans ages 2 years and older. However, *Dietary Guidelines for Americans, 2010* is being released at a time of rising concern about the health of the American population. Poor diet and physical inactivity are the most important factors contributing to an epidemic of overweight and obesity affecting men, women, and children in all segments of our society. Even in the absence of overweight, poor diet and physical inactivity are associated with major causes of morbidity and mortality in the United States. Therefore, the *Dietary Guidelines for Americans, 2010* is intended for Americans ages 2 years and older, including those at increased risk of chronic disease.

The intent of the Dietary Guidelines is to summarize and synthesize knowledge about individual nutrients and food components into an interrelated set of recommendations for healthy eating that can be adopted by the public. Taken together, the Dietary Guidelines recommendations encompass two over-arching concepts:

- **Maintain calorie balance over time to achieve and sustain a healthy weight.** People who are most successful at achieving and maintaining a healthy weight do so through continued attention to consuming only enough calories from foods and beverages to meet their needs and by being physically active. To curb the obesity epidemic and improve their health, many Americans must decrease the calories they consume and increase the calories they expend through physical activity.

- **Focus on consuming nutrient-dense foods and beverages.** Americans currently consume too much sodium and too many calories from solid fats, added sugars, and refined grains. These replace nutrient-dense foods and beverages and make it difficult for people to achieve recommended nutrient intake while controlling calorie and sodium intake. A healthy eating pattern limits intake of sodium, solid fats, added sugars, and refined grains and emphasizes nutrient-dense foods and beverages—vegetables, fruits, whole grains, fat-free or low-fat milk and milk products, seafood, lean meats and poultry, eggs, beans and peas, and nuts and seeds.

A basic premise of the Dietary Guidelines is that nutrient needs should be met primarily through consuming foods. In certain cases, fortified foods and dietary supplements may be useful in providing one or more nutrients that otherwise might be consumed in less than recommended amounts. Two eating patterns that embody the Dietary Guidelines are the USDA Food Patterns and their vegetarian adaptations and the DASH (Dietary Approaches to Stop Hypertension) Eating Plan.

A healthy eating pattern needs not only to promote health and help to decrease the risk of chronic diseases, but it also should prevent food borne illness. Four basic food safety principles (Clean, Separate, Cook, and Chill) work together to reduce the risk of food borne illnesses. In addition, some foods (such as milks, cheeses, and juices that have not been pasteurized and undercooked animal foods) pose high risk for food borne illness and should be avoided.

The information in the *Dietary Guidelines for Americans* is used in developing educational materials and aiding policymakers in designing and carrying out nutrition-related programs, including Federal food, nutrition education, and information programs. In addition, the *Dietary Guidelines for Americans* has the potential to offer authoritative statements as provided for in the Food and Drug Administration Modernization Act (FDAMA).

KEY RECOMMENDATIONS

BALANCING CALORIES TO MANAGE WEIGHT

Achieving and sustaining appropriate body weight across the lifespan is vital to maintaining good health and quality of life. Many behavioral, environmental, and genetic factors have been shown to affect a person's body weight. *Calorie balance over time is the key to weight management.* Calorie balance refers to the relationship between calories consumed from foods and beverages and calories expended in normal body functions (i.e., metabolic processes) and through physical activity. People cannot control the calories expended in metabolic processes, but they can control what they eat and drink, as well as how many calories they use in physical activity.

Calories consumed must equal calories expended for a person to maintain the same body weight. Consuming more calories than expended will result in weight gain. Conversely, consuming fewer calories than expended will result in weight loss. This can be achieved over time by eating fewer calories, being more physically active or, best of all, a combination of the two.

Maintaining a healthy body weight and preventing excess weight gain throughout the lifespan are highly preferable to losing weight after weight gain. Once a person becomes obese, reducing body weight back to a healthy range requires significant effort over a span of time, even years. People who are most successful at losing weight and keeping it off do so through continued attention to calorie balance.

The current high rates of overweight and obesity among virtually all subgroups of the population in the United States demonstrate that many Americans are in *calorie imbalance*—that is, they consume more calories than they expend. To curb the obesity epidemic and improve their health, Americans need to make significant efforts to decrease the total number of calories they consume from foods and beverages and increase calorie expenditure through physical activity. Achieving these goals will require Americans to select a healthy eating pattern that includes nutrient-dense foods and beverages they enjoy, meets nutrient requirements, and stays within calorie needs. In addition, Americans can choose from a variety of strategies to increase physical activity.

Key Recommendations:

- Prevent and/or reduce overweight and obesity through improved eating and physical activity behaviors.
- Control total calorie intake to manage body weight. For people who are overweight or obese, this will mean consuming fewer calories from foods and beverages.

- Increase physical activity and reduce time spent in sedentary behaviors.
- Maintain appropriate calorie balance during each stage of life—childhood, adolescence, adulthood, pregnancy and breastfeeding, and older age.

Foods and Food Components to Reduce

The *Dietary Guidelines for Americans* provides science-based advice to promote health and reduce the risk of major chronic diseases through diet and physical activity. Currently, very few Americans consume diets that meet Dietary Guideline recommendations. This section focuses on certain foods and food components that are consumed in excessive amounts and may increase the risk of certain chronic diseases. These include sodium, solid fats (major sources of saturated and *trans* fatty acids), added sugars, and refined grains. These food components are consumed in excess by children, adolescents, adults, and older adults. In addition, the diets of most men exceed the recommendation for cholesterol. Some people also consume too much alcohol.

This excessive intake replaces nutrient-dense forms of foods in the diet, making it difficult for people to achieve recommended nutrient intake and control calorie intake. Many Americans are overweight or obese, and are at higher risk of chronic diseases, such as cardiovascular disease, diabetes, and certain types of cancer. Even in the absence of overweight or obesity, consuming too much sodium, solid fats, saturated and *trans* fatty acids, cholesterol, added sugars, and alcohol increases the risk of some of the most common chronic diseases in the United States. Discussing solid fats in addition to saturated and *trans* fatty acids is important because, apart from the effects of saturated and *trans* fatty acids on cardiovascular disease risk, solid fats are abundant in the diets of Americans and contribute significantly to excess calorie intake. The recommendations in this section are based on evidence that eating less of these foods and food components can help Americans meet their nutritional needs within appropriate calorie levels, as well as help reduce chronic disease risk.

Key Recommendations:

- Reduce daily sodium intake to less than 2,300 milligrams (mg) and further reduce intake to 1,500 mg among persons who are 51 and older and those of any age who are African American or have hypertension, diabetes, or chronic kidney disease. The 1,500 mg recommendation applies to about half of the U.S. population, including children, and the majority of adults.
- Consume less than 10 percent of calories from saturated fatty acids by replacing them with monounsaturated and polyunsaturated fatty acids.
- Consume less than 300 mg per day of dietary cholesterol.
- Keep *trans* fatty acid consumption as low as possible, especially by limiting foods that contain synthetic sources of *trans* fats, such as partially hydrogenated oils, and by limiting other solid fats.
- Reduce the intake of calories from solid fats and added sugars.
- Limit the consumption of foods that contain refined grains, especially refined grain foods that contain solid fats, added sugars, and sodium.
- If alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and two drinks per day for men—and only by adults of legal drinking age.

FOODS AND NUTRIENTS TO INCREASE

A wide variety of nutritious foods are available in the United States. However, many Americans do not eat the array of foods that will provide all needed nutrients while staying within calorie needs. In the United States, intakes of vegetables, fruits, whole grains, milk and 57 milk products, and oils are lower than recommended. As a result, dietary intakes of several nutrients—potassium, dietary fiber, calcium, and vitamin D—are low enough to be of public health concern for both adults and children. Several other nutrients also are of concern for specific population groups, such as folic acid for women who are capable of becoming pregnant.

This section describes food choices that should be emphasized to help Americans close nutrient gaps and move toward healthful eating patterns. Recommendations are based on evidence that consuming these foods within the context of an overall healthy eating pattern is associated with a health benefit or meeting nutrient needs. Guidance on food choices for a healthy eating pattern generally groups foods based on commonalities in nutrients provided and how the foods are viewed and used by consumers. The following recommendations provide advice about making choices from all food groups while balancing calorie needs.

Key Recommendations

Individuals should meet the following recommendations as part of a healthy eating pattern and while staying within their calorie needs.

- Increase vegetable and fruit intake.
- Eat a variety of vegetables, especially dark-green and red and orange vegetables and beans and peas.
- Consume at least half of all grains as whole grains. Increase whole-grain intake by replacing refined grains with whole grains.
- Increase intake of fat-free or low-fat milk and milk products, such as milk, yogurt, cheese, or fortified soy beverages.
- Choose a variety of protein foods, which include seafood, lean meat and poultry, eggs, beans and peas, soy products, and unsalted nuts and seeds.
- Increase the amount and variety of seafood consumed by choosing seafood in place of some meat and poultry.
- Replace protein foods that are higher in solid fats with choices that are lower in solid fats and calories and/or are sources of oils.
- Use oils to replace solid fats where possible.
- Choose foods that provide more potassium, dietary fiber, calcium, and vitamin D, which are nutrients of concern in American diets. These foods include vegetables, fruits, whole grains, and milk and milk products.

Recommendations for Specific Population Groups

Women capable of becoming pregnant

- Choose foods that supply heme iron, which is more readily absorbed by the body, additional iron sources, and enhancers of iron absorption such as vitamin C-rich foods.
- Consume 400 micrograms (mcg) per day of synthetic folic acid (from fortified foods and/or supplements) in addition to food forms of folate from a varied diet.

Women who are pregnant or breastfeeding

- Consume 8 to 12 ounces of seafood per week from a variety of seafood types.
- Due to their methyl mercury content, limit white (albacore) tuna to 6 ounces per week and do not eat the following four types of fish: tilefish, shark, swordfish, and king mackerel.
- If pregnant, take an iron supplement as recommended by an obstetrician or other health care provider.

Individuals ages 50 years and older

- Consume foods fortified with vitamin B12, such as fortified cereals, or dietary supplements.

RISK FACTORS AND CORONARY HEART DISEASE

American Heart Association Scientific Position
http://www.americanheart.org/presenter.jhtml?identifier=4726

Extensive clinical and statistical studies have identified several factors that increase the risk of coronary heart disease and heart attack. Major risk factors are those that research has shown significantly increase the risk of heart and blood vessel (cardiovascular) disease. Other factors are associated with increased risk of cardiovascular disease, but their significance and prevalence haven't yet been precisely determined. They're called contributing risk factors.

The American Heart Association has identified several risk factors. Some of them can be modified, treated or controlled, and some can't. The more risk factors you have, the greater your chance of developing coronary heart disease. Also, the greater the level of each risk factor, the greater the risk. For example, a person with a total cholesterol of 300 mg/dL has a greater risk than someone with a total cholesterol of 245 mg/dL, even though everyone with a total cholesterol greater than 240 is considered high-risk.

What are the major risk factors that can't be changed?

- **Increasing age** — Over 83 percent of people who die of coronary heart disease are 65 or older. At older ages, women who have heart attacks are more likely than men are to die from them within a few weeks.

- **Male sex (gender)** — Men have a greater risk of heart attack than women do, and they have attacks earlier in life. Even after menopause, when women's death rate from heart disease increases, it's not as great as men's.

- **Heredity** (including **Race**) — Children of parents with heart disease are more likely to develop it themselves. African Americans have more severe high blood pressure than Caucasians and a higher risk of heart disease. Heart disease risk is also higher among Mexican Americans, American Indians, native Hawaiians and some Asian Americans. This is partly due to higher rates of obesity and diabetes. Most people with a strong family history of heart disease have one or more other risk factors. Just as you can't control your age, sex and race, you can't control your family history. Therefore, it's even more important to treat and control any other risk factors you have.

What are the major risk factors you can modify, treat or control by changing your lifestyle or taking medicine?

- **Tobacco smoke** — Smokers' risk of developing coronary heart disease is 2–4 times that of nonsmokers. Cigarette smoking is a powerful independent risk factor for sudden cardiac death in patients with coronary heart disease; smokers have about twice the risk of nonsmokers. Cigarette smoking also acts with other risk factors to greatly increase the risk for coronary heart disease. People who smoke cigars or pipes seem to have a higher risk of death from coronary heart disease (and possibly stroke) but their risk isn't as great as cigarette smokers'. Exposure to other people's smoke increases the risk of heart disease even for nonsmokers.

- **High blood cholesterol** — As blood cholesterol rises, so does risk of coronary heart disease. When other risk factors (such as high blood pressure and tobacco smoke) are present, this risk increases even more. A person's cholesterol level is also affected by age, sex, heredity and diet.

- **High blood pressure** — High blood pressure increases the heart's workload, causing the heart to thicken and become stiffer. It also increases your risk of stroke, heart attack, kidney failure and congestive heart failure. When high blood pressure exists with obesity, smoking, high blood cholesterol levels or diabetes, the risk of heart attack or stroke increases several times.

- **Physical inactivity** — An inactive lifestyle is a risk factor for coronary heart disease. Regular, moderate-to-vigorous physical activity helps prevent heart and blood vessel disease. The more vigorous the activity, the greater your benefits. However, even moderate-intensity activities help if done regularly and long term. Physical activity can help control blood cholesterol, diabetes and obesity, as well as help lower blood pressure in some people.

- **Obesity and overweight** — People who have excess body fat — especially if a lot of it is at the waist — are more likely to develop heart disease and stroke even if they have no other risk factors. Excess weight increases the heart's work. It also raises blood pressure and blood cholesterol and triglyceride levels, and lowers HDL ("good") cholesterol levels. It can also make diabetes more likely to develop. Many obese and overweight people may have difficulty losing weight. But by losing even as few as 10 pounds, you can lower your heart disease risk.

- **Diabetes mellitus** — Diabetes seriously increases your risk of developing cardiovascular disease. Even when glucose (blood sugar) levels are under control, diabetes increases the risk of heart disease and stroke, but the risks are even greater if blood sugar is not well controlled. About three-quarters of people with diabetes die of some form of heart or blood vessel disease. If you have diabetes, it's extremely important to work with your healthcare provider to manage it and control any other risk factors you can.

What other factors contribute to heart disease risk?

- Individual response to **stress** may be a contributing factor. Some scientists have noted a relationship between coronary heart disease risk and stress in a person's life, their health behaviors and socioeconomic status. These factors may affect established risk factors. For example, people under stress may overeat, start smoking or smoke more than they otherwise would.

- Drinking **too much alcohol** can raise blood pressure, cause heart failure and lead to stroke. It can contribute to high triglycerides, cancer and other diseases, and produce irregular heartbeats. It contributes to obesity, alcoholism, suicide and accidents. The risk of heart disease in people who drink **moderate** amounts of alcohol (an average of one drink for women or two drinks for men per day) is lower than in nondrinkers. One drink is defined as 1-1/2 fluid ounces (fl oz) of 80-proof spirits (such as bourbon, Scotch, vodka, gin, etc.), 1 fl oz of 100-proof spirits, 4 fl oz of wine or 12 fl oz of beer. It's **not** recommended that nondrinkers start using alcohol or that drinkers increase the amount they drink.

CIGARETTE SMOKING AND CARDIOVASCULAR DISEASES

American Heart Association Scientific Position
http://www.americanheart.org/presenter.jhtml?identifier=4545

Cigarette smoking is the most important preventable cause of premature death in the United States. It accounts for more than 440,000 of the more than 2.4 million annual deaths. Cigarette smokers have a higher risk of developing several chronic disorders. These include fatty buildups in arteries, several types of cancer and chronic obstructive pulmonary disease (lung problems). Atherosclerosis (buildup of fatty substances in the arteries) is a chief contributor to the high number of deaths from smoking. Many studies detail the evidence that cigarette smoking is a major cause of coronary heart disease, which leads to heart attack.

How does smoking affect coronary heart disease risk?

Cigarette and tobacco smoke, high blood cholesterol, high blood pressure, physical inactivity, obesity and diabetes are the six major independent risk factors for coronary heart disease that you can modify or control. Cigarette smoking is so widespread and significant as a risk factor that the Surgeon General has called it "the leading preventable cause of disease and deaths in the United States."

Cigarette smoking increases the risk of coronary heart disease by itself. When it acts with other factors, it greatly increases risk. Smoking increases blood pressure, decreases exercise tolerance and increases the tendency for blood to clot. Smoking also increases the risk of recurrent coronary heart disease after bypass surgery.
Cigarette smoking is the most important risk factor for young men and women. It produces a greater relative risk in persons under age 50 than in those over 50.

Women who smoke and use oral contraceptives greatly increase their risk of coronary heart disease and stroke compared with nonsmoking women who use oral contraceptives.

Smoking decreases HDL (good) cholesterol. Cigarette smoking combined with a family history of heart disease also seems to greatly increase the risk.

What about cigarette smoking and stroke and peripheral arterial disease?

Studies show that cigarette smoking is an important risk factor for stroke. Inhaling cigarette smoke produces several effects that damage the cerebrovascular system. Women who take oral contraceptives and smoke increase their risk of stroke many times. Smoking also creates a higher risk for peripheral arterial disease and aortic aneurysm.

What about cigar and pipe smoking?

People who smoke cigars or pipes seem to have a higher risk of death from coronary heart disease (and possibly stroke), but their risk isn't as great as that of cigarette smokers. This is probably because they're less likely to inhale the smoke. Currently there's very little scientific information on cigar and pipe smoking and cardiovascular disease, especially among young men, who represent the vast majority of cigar users.

What about passive or secondhand smoke?

The link between secondhand smoke (also called environmental tobacco smoke) and disease is well known, and the connection to cardiovascular-related disability and death is also clear. About 22,700 to 69,600 premature deaths from heart and blood vessel disease are caused by other people's smoke each year.

A Report of the Surgeon General: How Tobacco Smoke Causes Disease

The Biology and Behavioral Basis for Smoking-Attributable Disease

Fact Sheet http://www.surgeongeneral.gov/library/tobaccosmoke/factsheet.html

This is the 30th tobacco-related Surgeon General's report issued since 1964. It describes in detail the specific pathways by which tobacco smoke damages the human body. The scientific evidence supports the following conclusions:

There is no safe level of exposure to tobacco smoke. Any exposure to tobacco smoke – even an occasional cigarette or exposure to secondhand smoke – is harmful.

- You don't have to be a heavy smoker or a long-time smoker to get a smoking-related disease or have a heart attack or asthma attack that is triggered by tobacco smoke.
- Low levels of smoke exposure, including exposures to secondhand tobacco smoke, lead to a rapid and sharp increase in dysfunction and inflammation of the lining of the blood vessels, which are implicated in heart attacks and stroke.
- Cigarette smoke contains more than 7,000 chemicals and compounds. Hundreds are toxic and at least 69 cause cancer. Tobacco smoke itself is a known human carcinogen.
- Chemicals in tobacco smoke interfere with the functioning of fallopian tubes, increasing risk for adverse pregnancy outcomes such as ectopic pregnancy, miscarriage, and low birth weight. They also damage the DNA in sperm which might reduce fertility and harm fetal development.

Damage from tobacco smoke is immediate.

- The chemicals in tobacco smoke reach your lungs quickly every time you inhale. Your blood then carries the toxicants to every organ in your body.
- The chemicals and toxicants in tobacco smoke damage DNA, which can lead to cancer. Nearly one-third of all cancer deaths every year are directly linked to smoking. Smoking causes about 85% of lung cancers in the U.S.
- Exposure to tobacco smoke quickly damages blood vessels throughout the body and makes blood more likely to clot. This damage can cause heart attacks, strokes, and even sudden death.
- The chemicals in tobacco smoke inflame the delicate lining of the lungs and can cause permanent damage that reduces the ability of the lungs to exchange air efficiently and leads to chronic obstructive pulmonary disease (COPD), which includes emphysema and chronic bronchitis.

Smoking longer means more damage.

- Both the risk and the severity of many diseases caused by smoking are directly related to how long the smoker has smoked and the number of cigarettes smoked per day.
- Chemicals in tobacco smoke cause inflammation and cell damage, and can weaken the immune system. The body makes white blood cells to respond to injuries, infections, and cancers. White blood cell counts stay high while smoking continues, meaning the body is constantly fighting against the damage caused by smoking which can lead to disease in almost any part of the body.
- Smoking can cause cancer and weaken your body's ability to fight cancer. With any cancer – even those not related to tobacco use – smoking can decrease the benefits of chemotherapy and other cancer treatments. Exposure to tobacco smoke can help tumors grow.

- The chemicals in tobacco smoke complicate the regulation of blood sugar levels, exacerbating the health issues resulting from diabetes. Smokers with diabetes have a higher risk of heart and kidney disease, amputation, eye disease causing blindness, nerve damage and poor circulation.

Cigarettes are designed for addiction.

- The design and contents of tobacco products make them more attractive and addictive than ever before. Cigarettes today deliver nicotine more quickly from the lungs to the heart and brain.
- While nicotine is the key chemical compound that causes and sustains the powerful addicting effects of cigarettes, other ingredients and design features make them even more attractive and more addictive.
- The powerful addicting elements of tobacco products affect multiple types of nicotine receptors in the brain.
- Evidence suggests that psychosocial, biologic, and genetic factors may also play a role in nicotine addiction.
- Adolescents' bodies are more sensitive to nicotine, and adolescents are more easily addicted than adults. This helps explain why about 1,000 teenagers become daily smokers every day.

There is no safe cigarette.

- The evidence indicates that changing cigarette designs over the last five decades, including filtered, low-tar, and "light" variations, have NOT reduced overall disease risk among smokers and may have hindered prevention and cessation efforts.
- The overall health of the public could be harmed if the introduction of novel tobacco products encourages tobacco use among people who would otherwise be unlikely to use a tobacco product or delays cessation among persons who would otherwise quit using tobacco altogether.

The only proven strategy for reducing the risk of tobacco-related disease and death is to never smoke, and if you do smoke to quit.

- Quitting at any age and at any time is beneficial. It's never too late to quit, but the sooner the better.
- Quitting gives your body a chance to heal the damage caused by smoking.
- When smokers quit, the risk for a heart attack drops sharply after just 1 year; stroke risk can fall to about the same as a nonsmoker's after 2-5 years; risks for cancer of the mouth, throat, esophagus, and bladder are cut in half after 5 years; and the risk for dying of lung cancer drops by half after 10 years.
- Smokers often make several attempts before they are able to quit, but new strategies for cessation, including nicotine replacement and non-nicotine medications, can make it easier.
- Talk to your doctor or call 1-800-QUIT-NOW and get started on a quit plan today.

WHY IS CHOLESTEROL IMPORTANT?

US Department of Health & Human Services, National Heart, Lung, and Blood Institute
http://www.nhlbi.nih.gov/health/public/heart/chol/wyntk.htm

Your blood cholesterol level has a lot to do with your chances of getting heart disease. High blood cholesterol is one of the major risk factors for heart disease. A risk factor is a condition that increases your chance of getting a disease. In fact, the higher your blood cholesterol level, the greater your risk for developing heart disease or having a heart attack. Heart disease is the number one killer of women and men in the United States. Each year, more than a million Americans have heart attacks, and about a half million people die from heart disease.

How Does Cholesterol Cause Heart Disease?

When there is too much cholesterol (a fat-like substance) in your blood, it builds up in the walls of your arteries. Over time, this buildup causes "hardening of the arteries" so that arteries become narrowed and blood flow to the heart is slowed down or blocked. The blood carries oxygen to the heart, and if enough blood and oxygen cannot reach your heart, you may suffer chest pain. If the blood supply to a portion of the heart is completely cut off by a blockage, the result is a heart attack.

High blood cholesterol itself does not cause symptoms, so many people are unaware that their cholesterol level is too high. It is important to find out what your cholesterol numbers are because lowering cholesterol levels that are too high lessens the risk for developing heart disease and reduces the chance of a heart attack or dying of heart disease, even if you already have it. Cholesterol lowering is important for everyone--younger, middle age, and older adults; women and men; and people with or without heart disease.

What Do Your Cholesterol Numbers Mean?

Everyone age 20 and older should have their cholesterol measured at least once every 5 years. It is best to have a blood test called a "lipoprotein profile" to find out your cholesterol numbers. This blood test is done after a 9- to 12-hour fast and gives information about your:

- Total cholesterol
- LDL (bad) cholesterol--the main source of cholesterol buildup and blockage in the arteries
- HDL (good) cholesterol--helps keep cholesterol from building up in the arteries
- Triglycerides--another form of fat in your blood

If it is not possible to get a lipoprotein profile done, knowing your total cholesterol and HDL cholesterol can give you a general idea about your cholesterol levels. If your total cholesterol is 200 mg/dL* or more or if your HDL is less than 40 mg/dL, you will need to have a lipoprotein profile done. See how your cholesterol numbers compare to the tables below.

Total Cholesterol Level	Category
Less than 200 mg/dL	Desirable
200-239 mg/dL	Borderline High
240 mg/dL and above	High

LDL Cholesterol Level	LDL-Cholesterol Category
Less than 100 mg/dL	Optimal
100-129 mg/dL	Near optimal/above optimal
130-159 mg/dL	Borderline high
160-189 mg/dL	High
190 mg/dL and above	Very high

* Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood.

HDL (good) cholesterol protects against heart disease, so for HDL, higher numbers are better. A level less than 40 mg/dL is low and is considered a major risk factor because it increases your risk for developing heart disease. HDL levels of 60 mg/dL or more help to lower your risk for heart disease.

Triglycerides can also raise heart disease risk. Levels that are borderline high (150-199 mg/dL) or high (200 mg/dL or more) may need treatment in some people.

What Affects Cholesterol Levels?

A variety of things can affect cholesterol levels. These are things you can do something about:

- **Diet**. Saturated fat and cholesterol in the food you eat make your blood cholesterol level go up. Saturated fat is the main culprit, but cholesterol in foods also matters. Reducing the amount of saturated fat and cholesterol in your diet helps lower your blood cholesterol level.

- **Weight**. Being overweight is a risk factor for heart disease. It also tends to increase your cholesterol. Losing weight can help lower your LDL and total cholesterol levels, as well as raise your HDL and lower your triglyceride levels.

- **Physical Activity**. Not being physically active is a risk factor for heart disease. Regular physical activity can help lower LDL (bad) cholesterol and raise HDL (good) cholesterol levels. It also helps you lose weight. You should try to be physically active for 30 minutes on most, if not all, days.

Things you cannot do anything about also can affect cholesterol levels. These include:

- **Age and Gender**. As women and men get older, their cholesterol levels rise. Before the age of menopause, women have lower total cholesterol levels than men of the same age. After the age of menopause, women's LDL levels tend to rise.

- **Heredity**. Your genes partly determine how much cholesterol your body makes. High blood cholesterol can run in families.

What Is Your Risk of Developing Heart Disease or Having a Heart Attack?

In general, the higher your LDL level and the more risk factors you have (other than LDL), the greater your chances of developing heart disease or having a heart attack. Some people are at high risk for a heart attack because they already have heart disease. Other people are at high risk for developing heart disease because they have diabetes (which is a strong risk factor) or a combination of risk factors for heart disease.

WHAT IS HIGH BLOOD PRESSURE?

Department of Health & Human Services, National Heart, Lung and Blood Institute
http://www.nhlbi.nih.gov/health/dci/Diseases/Hbp/HBP_WhatIs.html

High blood pressure (HBP) is a serious condition that can lead to coronary heart disease (also called coronary artery disease), heart failure, stroke, kidney failure, and other health problems.

"Blood pressure" is the force of blood pushing against the walls of the arteries as the heart pumps blood. If this pressure rises and stays high over time, it can damage the body in many ways.

Overview

About 1 in 3 adults in the United States has HBP. The condition itself usually has no symptoms. You can have it for years without knowing it. During this time, though, HBP can damage the heart, blood vessels, kidneys, and other parts of your body.

Knowing your blood pressure numbers is important, even when you're feeling fine. If your blood pressure is normal, you can work with your health care team to keep it that way. If your blood pressure is too high, treatment may help prevent damage to your body's organs.

Blood Pressure Numbers

Blood pressure is measured as systolic (sis-TOL-ik) and diastolic (di-a-STOL-ik) pressures. "Systolic" refers to blood pressure when the heart beats while pumping blood. "Diastolic" refers to blood pressure when the heart is at rest between beats.

You most often will see blood pressure numbers written with the systolic number above or before the diastolic number, such as 120/80 mmHg. (The mmHg is millimeters of mercury—the units used to measure blood pressure.)

The table below shows normal blood pressure numbers for adults. It also shows which numbers put you at greater risk for health problems.

Category	Systolic (top number)		Diastolic (bottom number)
Normal	Less than 120	*And*	Less than 80
Prehypertension	120–139	*Or*	80–89
High blood pressure			
Stage 1	140–159	*Or*	90–99
Stage 2	160 or higher	*Or*	100 or higher

Categories for Blood Pressure Levels in Adults (measured in millimeters of mercury, or mmHg)

The ranges in the table apply to most adults (aged 18 and older) who don't have short-term serious illnesses. Blood pressure doesn't stay the same all the time. It lowers as you sleep and rises when you wake up. Blood pressure also rises when you're excited, nervous, or active. If your numbers stay above normal most of the time, you're at risk for health problems. All levels above 120/80 mmHg raise your risk, and the risk grows as blood pressure numbers rise.

"Prehypertension" means you're likely to end up with HBP, unless you take steps to prevent it. If you're being treated for HBP and have repeat readings in the normal range, your blood pressure is under control. However, you still have the condition. You should see your doctor and follow your treatment plan to keep your blood pressure under control.

Your systolic and diastolic numbers may not be in the same blood pressure category. In this case, the more severe category is the one you're in. For example, if your systolic number is 160 and your diastolic number is 80, you have stage 2 HBP. If your systolic number is 120 and your diastolic number is 95, you have stage 1 HBP.

If you have diabetes or chronic kidney disease, HBP is defined as 130/80 mmHg or higher. HBP numbers also differ for children and teens. (For more information, go to "How Is High Blood Pressure Diagnosed?")

Outlook

Blood pressure tends to rise with age. Following a healthy lifestyle helps some people delay or prevent this rise in blood pressure. People who have HBP can take steps to control it and reduce their risk of related health problems. Key steps include following a healthy lifestyle, having ongoing medical care, and following your treatment plan.

BASICS ABOUT DIABETES

Centers for Disease Control
http://www.cdc.gov/diabetes/consumer/learn.htm

What is diabetes?

Diabetes is a disease in which blood glucose levels are above normal. Most of the food we eat is turned into glucose, or sugar, for our bodies to use for energy. The pancreas, an organ that lies near the stomach, makes a hormone called insulin to help glucose get into the cells of our bodies. When you have diabetes, your body either doesn't make enough insulin or can't use its own insulin as well as it should. This causes sugar to build up in your blood.

Diabetes can cause serious health complications including heart disease, blindness, kidney failure, and lower-extremity amputations. Diabetes is the seventh leading cause of death in the United States.
For more information, see the National Diabetes Information Clearinghouse publication, Your Guide to Diabetes: Type 1 and Type 2.

What are the symptoms of diabetes?

People who think they might have diabetes must visit a physician for diagnosis. They might have SOME or NONE of the following symptoms:

- Frequent urination
- Excessive thirst
- Unexplained weight loss
- Extreme hunger
- Sudden vision changes
- Tingling or numbness in hands or feet
- Feeling very tired much of the time
- Very dry skin
- Sores that are slow to heal
- More infections than usual.

Nausea, vomiting, or stomach pains may accompany some of these symptoms in the abrupt onset of insulin-dependent diabetes, now called type 1 diabetes.

What are the types of diabetes?

Type 1 diabetes, which was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes, may account for about 5% of all diagnosed cases of diabetes. **Type 2 diabetes**, which was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes, may account for about 90% to 95% of all diagnosed cases of diabetes. **Gestational diabetes** is a type of diabetes that only pregnant women get. If not treated, it can cause problems for mothers and babies. Gestational diabetes develops in 2% to 10% of all pregnancies but usually disappears when a pregnancy is over. **Other specific types of diabetes** resulting from specific genetic syndromes, surgery, drugs, malnutrition, infections, and other illnesses may account for 1% to 5% of all diagnosed cases of diabetes.

What are the risk factors for diabetes?

Risk factors for type 2 diabetes include older age, obesity, family history of diabetes, prior history of gestational diabetes, impaired glucose tolerance, physical inactivity, and race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2 diabetes.

Risk factors are less well defined for type 1 diabetes than for type 2 diabetes, but autoimmune, genetic, and environmental factors are involved in developing this type of diabetes.
Gestational diabetes occurs more frequently in African Americans, Hispanic/Latino Americans, American Indians, and people with a family history of diabetes than in other groups. Obesity is also associated with higher risk.

Women who have had gestational diabetes have a 35% to 60% chance of developing diabetes in the next 10–20 years.

Other specific types of diabetes, which may account for 1% to 5% of all diagnosed cases, result from specific genetic syndromes, surgery, drugs, malnutrition, infections, and other illnesses.

What is the treatment for diabetes?

Healthy eating, physical activity, and insulin injections are the basic therapies for type 1 diabetes. The amount of insulin taken must be balanced with food intake and daily activities. Blood glucose levels must be closely monitored through frequent blood glucose testing.

Healthy eating, physical activity, and blood glucose testing are the basic therapies for type 2 diabetes. In addition, many people with type 2 diabetes require oral medication, insulin, or both to control their blood glucose levels.

People with diabetes must take responsibility for their day-to-day care, and keep blood glucose levels from going too low or too high.

People with diabetes should see a health care provider who will monitor their diabetes control and help them learn to manage their diabetes. In addition, people with diabetes may see endocrinologists, who may specialize in diabetes care; ophthalmologists for eye examinations; podiatrists for routine foot care; and dietitians and diabetes educators who teach the skills needed for daily diabetes management.

What causes type 1 diabetes?

The causes of type 1 diabetes appear to be much different than those for type 2 diabetes, though the exact mechanisms for developing both diseases are unknown. The appearance of type 1 diabetes is suspected to follow exposure to an "environmental trigger," such as an unidentified virus, stimulating an immune attack against the beta cells of the pancreas (that produce insulin) in some genetically predisposed people.

Can diabetes be prevented?

Researchers are making progress in identifying the exact genetics and "triggers" that predispose some individuals to develop type 1 diabetes, but prevention remains elusive.

A number of studies have shown that regular physical activity can significantly reduce the risk of developing type 2 diabetes. Type 2 diabetes is associated with obesity.

Is there a cure for diabetes?

In response to the growing health burden of diabetes, the diabetes community has three choices: prevent diabetes; cure diabetes; and improve the quality of care of people with diabetes to prevent devastating complications. All three approaches are actively being pursued by the US Department of Health and Human Services.

Both the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) are involved in prevention activities. The NIH is involved in research to cure both type 1 and type 2 diabetes, especially type 1. CDC focuses most of its programs on making sure that the proven science to prevent complications is put into daily practice for people with diabetes. The basic idea is that if all the important research and science are not applied meaningfully in the daily lives of people with diabetes, then the research is, in essence, wasted.

Several approaches to "cure" diabetes are currently under investigation:

- Pancreas transplantation
- Islet cell transplantation (islet cells produce insulin)
- Artificial pancreas development
- Genetic manipulation (fat or muscle cells that don't normally make insulin have a human insulin gene inserted — then these "pseudo" islet cells are transplanted into people with type 1 diabetes).

Each of these approaches still has a lot of challenges, such as preventing immune rejection; finding an adequate number of insulin cells; keeping cells alive; and others. But progress is being made in all areas.

WHAT ARE THE HEALTH RISKS OF OVERWEIGHT AND OBESITY?

Department of Health & Human Services, National Heart, Lung, and Blood Institute
http://www.nhlbi.nih.gov/health/dci/Diseases/obe/obe_risks.html

Being overweight or obese isn't a cosmetic problem. It greatly raises the risk in adults for many diseases and conditions.

Overweight and Obesity-Related Health Problems in Adults

Coronary Heart Disease

Coronary heart disease (CHD) is a condition in which a substance called plaque (plak) builds up inside the coronary arteries. These arteries supply oxygen-rich blood to your heart. Plaque is made up of fat, cholesterol, calcium, and other substances found in the blood.

Plaque can narrow or block the coronary arteries and reduce blood flow to the heart muscle. This can cause angina (an-JI-nuh or AN-juh-nuh) or a heart attack. (Angina is chest pain or discomfort.)

As your body mass index (BMI) increases, so does your risk of having CHD and a heart attack. Obesity also can lead to heart failure. This is a serious condition in which your heart can't pump enough blood to meet your body's needs.

High Blood Pressure

Blood pressure is the force of blood pushing against the walls of the arteries as the heart pumps out blood. If this pressure rises and stays high over time, it can damage the body in many ways. Your chances of having high blood pressure are greater if you're overweight or obese.

Stroke

Being overweight or obese can lead to a buildup of plaque in your arteries. Eventually, an area of plaque can rupture, causing a blood clot to form at the site. If the clot is close to your brain, it can block the flow of blood and oxygen to your brain and cause a stroke. The risk of having a stroke rises as BMI increases.

Type 2 Diabetes

Diabetes is a disease in which the body's blood glucose, or blood sugar, level is too high. Normally, the body breaks down food into glucose and then carries it to cells throughout the body. The cells use a hormone called insulin to turn the glucose into energy.

In type 2 diabetes, the body's cells don't use insulin properly. At first, the body reacts by making more insulin. Over time, however, the body can't make enough insulin to control its blood sugar level.

Diabetes is a leading cause of early death, CHD, stroke, kidney disease, and blindness. Most people who have type 2 diabetes are overweight.

Abnormal Blood Fats

If you're overweight or obese, you're at increased risk of having abnormal levels of blood fats. These include high levels of triglycerides and LDL ("bad") cholesterol and low levels of HDL ("good") cholesterol.
Abnormal levels of these blood fats are a risk factor for CHD. For more information about triglycerides and LDL and HDL cholesterol, go to the Diseases and Conditions Index High Blood Cholesterol article.

Metabolic Syndrome

Metabolic syndrome is the name for a group of risk factors linked to overweight and obesity. These risk factors increase your risk of CHD and other health problems, such as diabetes and stroke.
You can develop any one of these risk factors by itself, but they tend to occur together. A diagnosis of metabolic syndrome is made if you have at least three of the following risk factors:

- A large waistline. This also is called abdominal obesity or "having an apple shape." Having extra fat in the waist area is a greater risk factor for CHD than having extra fat in other parts of the body, such as on the hips.
- A higher than normal triglyceride level (or you're on medicine to treat high triglycerides).
- A lower than normal HDL cholesterol level (or you're on medicine to treat low HDL cholesterol).
- Higher than normal blood pressure (or you're on medicine to treat high blood pressure).
- Higher than normal fasting blood sugar (or you're on medicine to treat diabetes).

Cancer

Being overweight or obese raises the risk of colon, breast, endometrial, and gallbladder cancers.

Osteoarthritis

Osteoarthritis is a common joint problem of the knees, hips, and lower back. The condition occurs if the tissue that protects the joints wears away. Extra weight can put more pressure and wear on joints, causing pain.

Sleep Apnea

Sleep apnea is a common disorder in which you have one or more pauses in breathing or shallow breaths while you sleep.

A person who has sleep apnea may have more fat stored around the neck. This can narrow the airway, making it hard to breathe.

Reproductive Problems

Obesity can cause menstrual irregularity and infertility in women.

Gallstones

Gallstones are hard pieces of stone-like material that form in the gallbladder. They're mostly made of cholesterol. Gallstones can cause abdominal or back pain.

People who are overweight or obese are at increased risk of having gallstones. Also, being overweight may result in an enlarged gallbladder that doesn't work right.

Overweight and Obesity-Related Health Problems in Children and Teens

Overweight and obesity also increase the health risks for children and teens. Type 2 diabetes once was rare in American children, but an increasing number of children are developing the disease.
Also, overweight children are more likely to become overweight or obese as adults, with the same disease risks.

ALCOHOL USE AND HEALTH

Centers for Disease Control
http://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

There are approximately 79,000 deaths attributable to excessive alcohol use each year in the United States. This makes excessive alcohol use the 3rd leading lifestyle-related cause of death for the nation. Additionally, excessive alcohol use is responsible for 2.3 million years of potential life lost (YPLL) annually, or an average of about 30 years of potential life lost for each death. In the single year 2005, there were more than 1.6 million hospitalizations and more than 4 million emergency room visits for alcohol-related conditions.

The Standard Measure of Alcohol

In the United States, a standard drink is any drink that contains 0.6 ounces (13.7 grams or 1.2 tablespoons) of pure alcohol. Generally, this amount of pure alcohol is found in

- 12-ounces of regular beer or wine cooler.
- 8-ounces of malt liquor.
- 5-ounces of wine.
- 1.5-ounces of 80-proof distilled spirits or liquor (e.g., gin, rum, vodka, whiskey).

Definitions of Patterns of Drinking Alcohol

- Binge drinking
  - For women, 4 or more drinks during a single occasion.
  - For men, 5 or more drinks during a single occasion.

- Heavy drinking
  - For women, more than 1 drink per day on average.
  - For men, more than 2 drinks per day on average

Excessive drinking includes heavy drinking, binge drinking or both. Most people who binge drink are not alcoholics or alcohol dependent.

According to the *Dietary Guidelines for Americans*, if you drink alcoholic beverages, do so in moderation, which is defined as no more than 1 drink per day for women and no more than 2 drinks per day for men. However, there are some persons who should not drink any alcohol, including those who are

- Pregnant or trying to become pregnant.
- Taking prescription or over-the-counter medications that may cause harmful reactions when mixed with alcohol.
- Younger than age 21.
- Recovering from alcoholism or are unable to control the amount they drink.
- Suffering from a medical condition that may be worsened by alcohol.
- Driving, planning to drive, or participating in other activities requiring skill, coordination, and alertness.

Immediate Health Risks

Excessive alcohol use has immediate effects that increase the risk of many harmful health conditions. These immediate effects are most often the result of binge drinking and include the following—

- Unintentional injuries, including traffic injuries, falls, drownings, burns, and unintentional firearm injuries.

- Violence, including intimate partner violence and child maltreatment. About 35% of victims report that offenders are under the influence of alcohol. Alcohol use is also associated with 2 out of 3 incidents of intimate partner violence. Studies have also shown that alcohol is a leading factor in child maltreatment and neglect cases, and is the most frequent substance abused among these parents.

- Risky sexual behaviors, including unprotected sex, sex with multiple partners, and increased risk of sexual assault. These behaviors can result in unintended pregnancy or sexually transmitted diseases.

- Miscarriage and stillbirth among pregnant women, and a combination of physical and mental birth defects among children that last throughout life.

- Alcohol poisoning, a medical emergency that results from high blood alcohol levels that suppress the central nervous system and can cause loss of consciousness, low blood pressure and body temperature, coma, respiratory depression, or death.

Long-Term Health Risks

Over time, excessive alcohol use can lead to the development of chronic diseases, neurological impairments and social problems. These include but are not limited to—

- Neurological problems, including dementia, stroke and neuropathy.
- Cardiovascular problems, including myocardial infarction, cardiomyopathy, atrial fibrillation and hypertension.
- Psychiatric problems, including depression, anxiety, and suicide.
- Social problems, including unemployment, lost productivity, and family problems.
- Cancer of the mouth, throat, esophagus, liver, colon, and breast. In general, the risk of cancer increases with increasing amounts of alcohol.
- Liver diseases, including—
    - Alcoholic hepatitis.
    - Cirrhosis, which is among the 15 leading causes of all deaths in the United States.
    - Among persons with Hepatitis C virus, worsening of liver function and interference with medications used to treat this condition.
- Other gastrointestinal problems, including pancreatitis and gastritis.

EXCESSIVE ALCOHOL USE AND RISKS TO MEN'S HEALTH

Centers for Disease Control
http://www.cdc.gov/alcohol/fact-sheets/mens-health.htm

Men are more likely than women to drink excessively. Excessive drinking is associated with significant increases in short-term risks to health and safety, and the risk increases as the amount of drinking increases. Men are also more likely than women to take other risks (e.g., drive fast or without a safety belt), when combined with excessive drinking, further increasing their risk of injury or death.

Drinking levels for men

- Approximately 62% of adult men reported drinking alcohol in the last 30 days and were more likely to binge drink than women (47%) during the same time period.
- Men average about 12.5 binge drinking episodes per person per year, while women average about 2.7 binge drinking episodes per year.
- Most people who binge drink are not alcoholics or alcohol dependent.
- It is estimated that about 17% of men and about 8% of women will meet criteria for alcohol dependence at some point in their lives.

Injuries and deaths as a result of excessive alcohol use

- Men consistently have higher rates of alcohol-related deaths and hospitalizations than women.
- Among drivers in fatal motor-vehicle traffic crashes, men are almost twice as likely as women to have been intoxicated (i.e., a blood alcohol concentration of 0.08% or greater).
- Excessive alcohol consumption increases aggression and, as a result, can increase the risk of physically assaulting another person.
- Men are more likely than women to commit suicide, and more likely to have been drinking prior to committing suicide.

Reproductive Health and Sexual Function

Excessive alcohol use can interfere with testicular function and male hormone production resulting in impotence, infertility, and reduction of male secondary sex characteristics such as facial and chest hair.
Excessive alcohol use is commonly involved in sexual assault. Impaired judgment caused by alcohol may worsen the tendency of some men to mistake a women's friendly behavior for sexual interest and misjudge their use of force. Also, alcohol use by men increases the chances of engaging in risky sexual activity including unprotected sex, sex with multiple partners, or sex with a partner at risk for sexually transmitted diseases.

Cancer

Alcohol consumption increases the risk of cancer of the mouth, throat, esophagus, liver, and colon in men.
There are a number of health conditions affected by excessive alcohol use that affect both men and women. Some additional conditions are covered in the Alcohol Use and Health Fact Sheet.

EXCESSIVE ALCOHOL USE AND RISKS TO WOMEN'S HEALTH

Centers for Disease Control
http://www.cdc.gov/alcohol/fact-sheets/womens-health.htm

Although men are more likely to drink alcohol and drink in larger amounts, gender differences in body structure and chemistry cause women to absorb more alcohol, and take longer to break it down and remove it from their bodies (i.e., to metabolize it). In other words, upon drinking equal amounts, women have higher alcohol levels in their blood than men, and the immediate effects occur more quickly and last longer. These differences also make women more vulnerable to alcohol's long-term effects on their health.

Reproductive Health

- National surveys show that about 6 out of every 10 women of child-bearing age (i.e., aged 18–44 years) use alcohol, and slightly less than one-third of women who drink alcohol in this age group binge drink.
- In 2008, about 7.2% of pregnant women used alcohol.
- Excessive drinking may disrupt menstrual cycling and increase the risk of infertility, miscarriage, stillbirth, and premature delivery.
- Women who binge drink are more likely to have unprotected sex and multiple sex partners. These activities increase the risks of unintended pregnancy[6] and sexually transmitted diseases.

Alcohol and Pregnancy

- Women who drink alcohol while pregnant increase their risk of having a baby with Fetal Alcohol Spectrum Disorders (FASD). The most severe form is Fetal Alcohol Syndrome (FAS), which causes mental retardation and birth defects.
- FASD are completely preventable if a woman does not drink while pregnant or while she may become pregnant.
- Studies have shown that about 1 of 20 pregnant women drank excessively before finding out they were pregnant. No amount of alcohol is safe to drink during pregnancy. For women who drink during pregnancy, stopping as soon as possible may lower the risk of having a child with physical, mental, or emotional problems.
- Research suggests that women who drink alcohol while pregnant are more likely to have a baby die from Sudden Infant Death Syndrome (SIDS). This risk substantially increases if a woman binge drinks during her first trimester of pregnancy.
- The risk of miscarriage is also increased if a woman drinks excessively during her first trimester of pregnancy.

Other Health Concerns

- **Liver Disease**: The risk of cirrhosis and other alcohol-related liver diseases is higher for women than for men.
- **Impact on the Brain**: Excessive drinking may result in memory loss and shrinkage of the brain.
- Research suggests that women are more vulnerable than men to the brain damaging effects of excessive alcohol use, and the damage tends to appear with shorter periods of excessive drinking for women than for men.
- **Impact on the Heart**: Studies have shown that women who drink excessively are at increased risk for damage to the heart muscle than men even for women drinking at lower levels.

- **Cancer**: Alcohol consumption increases the risk of cancer of the mouth, throat, esophagus, liver, colon, and breast among women. The risk of breast cancer increases as alcohol use increases.
- **Sexual Assault**: Binge drinking is a risk factor for sexual assault, especially among young women in college settings. Each year, about 1 in 20 college women are sexually assaulted. Research suggests that there is an increase in the risk of rape or sexual assault when both the attacker and victim have used alcohol prior to the attack.