Japanese National Physical Activity and Health Promotion Guidelines

Toshiki Ohta, Izumi Tabata, and Yumiko Mochizuki

Editor's Note: The English language translation of the Japanese Physical Activity and Health Promotion Guidelines were originally published in the July 1999 edition of JAPA. In order to provide readers of the Japan Special Edition with as complete a source of information as possible about physical activity and aging in Japan, we have decided to republish the guidelines as an appendix to the special edition. The republication of these guidelines did not affect the publication schedule of any other article submitted to JAPA. The guidelines were developed by the Japanese Ministry of Health and Welfare. Toshiki Ohta, MD, and Izumi Tabata, PhD, of the Division of Health Promotion of the National Institute of Health and Nutrition, 1-23-1, Toyama, Shinjuku-Ku, Tokyo 162, Japan were responsible for the translation of the guidelines. After this translation from the original Japanese, the guidelines underwent minor editorial revisions in the office of the Journal of Aging and Physical Activity.

Wojtek J. Chodzko-Zajko, Editor

The Japanese National Physical Activity and Health Promotion Guidelines were compiled by the Ministry of Health and Welfare of Japan. A broad definition of physical activity was adopted in this report. Objectives of physical activity were (a) maintaining and promoting health, (b) preventing and treating disease, (c) reducing stress, (d) promoting development in childhood, (e) maintaining and improving independence in older people, (f) managing symptoms associated with menopause, and (g) promoting general psychological well-being.

Key Words: physical activity, Japanese, health

The Japanese National Physical Activity and Health Promotion Guidelines were compiled by the Japanese Ministry of Health and Welfare. In this report a broad definition of physical activity is adopted, wherein physical activity is defined as any activity that consumes, through the movement of skeletal muscles, a greater amount of energy than is consumed at rest. This definition of physical activity encompasses many activities of daily living, as well as hobbies, leisure pursuits, structured exercise, and sports. Such a perspective recognizes that physical activities that improve health and well-being are not limited to exercise and sports, but also

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include a broad range of everyday activities that can be performed easily, enjoyably, and continuously by people of all ages and both sexes. Such activity contributes to the health of the nation as a whole.

There are many reasons that people should be active. With respect to health promotion, individual physical activity goals are likely to vary as a function of age and sex. Among the more common physical activity objectives are (a) maintenance and promotion of health, (b) prevention and treatment of disease, (c) reduction of stress, (d) promotion of development in childhood, (e) maintenance and improvement of independence in older people, (f) management of symptoms associated with menopause, and (g) promotion of general psychological well-being. It is apparent that there is no single exercise or physical activity prescription that is optimal. Rather, physical activity prescription varies as a function of the age and health status of the participant, as well as the specific physical activity aims and objectives.

In the Japanese National Physical Activity and Health Promotion Guidelines, physical activity recommendations are offered for three age classifications: (a) the childhood growth period, (b) early adulthood and middle age, and (c) old age. In addition, the special needs and characteristics of women are acknowledged. The development of specific physical activity recommendations for the disabled was considered, but, because of the great variation in type and severity of disabilities in this population, the committee chose to postpone recommendations in this area for a subsequent report. Nonetheless, there can be little doubt that regular physical activity is of great value to many disabled people and that many of the general principles presented in this report are likely to be applicable to both able and disabled populations.

An underlying principle throughout the report is the notion that, in order to attain optimal health benefits, physical activity must be incorporated into everyday life along with appropriate nutrition, adequate rest, and other positive lifestyle habits. It is essential that, as a society, we provide adequate opportunities and appropriate environmental support for physical activity.

Physical Activity for Health

The traditional notion of exercise for health has focused on the prescription of aerobic or cardiovascular exercise, primarily for the prevention and treatment of chronic diseases associated with unhealthy lifestyle choices (overweight, hypertension, hyperlipidemia, diabetes, etc.). In recent years, however, there has been increasing recognition of the need to maintain adequate levels of muscle strength in order to permit the efficient performance of activities of daily living and to improve the quality of life. In this report, we focus not only on aerobic exercise but also on physical activities that contribute to increases in muscle strength.

There is no single mode of physical activity that is optimal for health promotion. Rather, a wide variety of different activities can be chosen depending on the specific health and fitness needs of each individual. Following is a list of representative subsets of suitable activities.

Everyday Activities

*Housework*: Activities of daily life, such as cleaning, washing laundry, making the bed, and other housework, can be an effective means of maintaining one’s capacity for physical activity.
Transportation: Many activities associated with commuting to school or work, such as walking, bicycling, and climbing stairs, can be effective means of maintaining physical activity, especially when performed in a purposeful manner.

Hobbies and Leisure Activities

Gardening: This is a relatively low-intensity form of physical activity that, if performed regularly, can have significant physical, as well as psychological, benefits.

Hiking: Hiking is a physical activity that is often performed in beautiful natural surroundings, resulting in a combination of physical and psychological benefits.

Exercise and Sport

Calisthenics: Physical activities that stretch the muscles and rotate joints are useful for maintaining range of motion and for promoting flexibility and coordination. For older people in particular, stretching and light calisthenics might help maintain or increase muscle strength and thereby assist in preventing falls and maintaining independence.

Walking: Walking is a convenient form of aerobic exercise that can be performed almost anywhere, without concerns about equipment or space. Accordingly, it is one of the most popular forms of physical activity. Walking is an effective means of maintaining or increasing leg strength.

Aquatic exercise: Exercising in the water reduces strain on the knees, legs, and back and can be an effective form of aerobic exercise for individuals with orthopedic problems and arthritis. Water exercise can also be a useful form of exercise for obese individuals.

Cycling: Cycling is a form of aerobic activity that puts little stress on the knees and lower back, and it can be done at a self-determined pace. Cycling can be performed as a group activity in which it is possible to be active and relax with friends and family in a natural environment.

Team sports: Many ball games and team sports provide individuals with the opportunity to be physically active in a social environment. Team sports also provide the appeal of improving one’s skill level and playing for the enjoyment of victory. Playing a wide variety of ball games can help maintain or increase overall capacity for physical activity.

Physical Activities for the Maintenance or Improvement of Aerobic Capacity

Regular aerobic exercise is necessary for the maintenance of adequate cardiopulmonary function and for the prevention and treatment of many lifestyle-related diseases. In order to realize these effects, however, appropriate exercise intensity and duration are required. The major forms of aerobic exercise include walking, jogging, cycling, and water exercises.

In general, most people between the ages of 20 and 60 years should exercise at approximately 50% of maximal oxygen uptake or at a heart rate of 110–130 beats/
min. It is recognized, however, that exercise intensity will vary as a function of age and fitness level. In general, 140–180 min of exercise per week are considered necessary for improving aerobic fitness. For those under 20 or over 70 years of age, precise exercise prescriptions have yet to be developed. For juveniles, an intensity level of over 60% of maximum oxygen uptake and a duration of at least 200 min/week might be necessary. Heart rate at this intensity of exercise is about 150 beats/min. With respect to people over the age of 70 years, there are great individual differences among these individuals, and it is difficult to make a generalized prescription, but the subjective intensity level of physical activity for most people in this age group should be light or fairly light. A duration of about 140 min of exercise per week is considered necessary.

**Physical Activities for the Maintenance or Improvement of Muscle Strength**

Regular physical activity is essential in order to maintain or increase muscle strength. Minimal levels of muscle strength are necessary in order to efficiently perform activities of daily living and to maintain an acceptable quality of life. During the childhood growth period, muscle strength increases appreciably as a function of maturation. In early adulthood, middle age, and old age, however, it is necessary to regularly perform physical activity in order to preserve or increase muscle strength. The performance of strength-enhancing exercise is particularly important for older individuals who wish to sustain an independent lifestyle for as long as possible.

Basic muscle-strengthening activities include resistance training with free weights or weight-training machines, calisthenics, and other exercises such as push-ups and sit-ups, bench stepping, and stair climbing. For older people and others with low levels of initial strength, stretching, light calisthenics, and other low-load exercises can be effective.

**The Childhood Growth Period**

For the purposes of this report the childhood growth period is considered to be from birth to the age of 18 years, but it is recognized that there is considerable variability among individuals with respect to the process of maturation. On average, skeletal growth stops at about 17 years in males and 15 years in females, whereas development of muscle mass and strength continues into early adulthood.

**THE CURRENT STATUS OF PHYSICAL ACTIVITY PARTICIPATION**

A survey conducted in the Tokyo metropolitan area revealed that the major forms of outdoor physical activity performed by 3- to 6-year-old children are riding tricycles and bicycles, playing on swings and other playground equipment, and playing with balls. The physical activities in which children participate were summarized in the “White Paper for Leisure Activities.”

The major problem with physical activity levels in childhood occurs between 7 and 18 years of age. During this period the following trends are observed: (a) a
decrease in the overall percentage of children who exercise, (b) an increase in the percentage of overweight children, (c) a deterioration in physical strength and exercise capacity, and (d) a decrease in the amount of time that children who are overweight and have high total cholesterol and low high-density lipoprotein (HDL) cholesterol spend participating in high-intensity physical activity. These observations strongly suggest that decreases in physical activity levels among children can have adverse consequences for their health and physical performance.

GOALS OF PHYSICAL ACTIVITY PARTICIPATION

The primary goal of physical activity during the childhood growth period is the development of a healthy mind and body. The method by which this is achieved varies according to the age of the child. In early childhood (3–6 years of age) the main goal of physical activity is to stimulate play. Play in turn helps build the foundation on which future physical activity participation is built. It also assists the child in learning how to communicate in a social environment with family and friends.

For children in the later stages of childhood (7–18 years of age) regular physical activity serves to promote appropriate muscular and skeletal development, as well as psychological well-being. A child who includes physical activity as a regular component of his or her lifestyle is less likely to suffer from obesity and other conditions that limit physical performance. At this age, physical activity also plays an important role in developing social skills through communication with family and friends.

SPECIFIC RECOMMENDATIONS

A summary of the physical activity recommendations for children is presented in Table 1.

*Early Childhood.* Examples of appropriate physical activities for this age group include (a) accompanying parents during everyday activities such as shopping or walking in the park; (b) outdoor play such as riding tricycles or bicycles, playing on swings and other playground equipment, and playing with balls; and (c) physical activity that accompanies exercise, play, or other structured and unstructured activities at school or in sport clubs. Specific recommendations with respect to intensity and duration of physical activity have not been established, but it has been reported that outdoor play averaged about 60 min/day.

*Late Childhood.* Examples of appropriate physical activities for this age group include (a) daily activities such as walking or riding a bicycle to school, (b) hobbies and other leisure-time activities such as hiking or swimming in lakes or the sea, and (c) structured and unstructured sports and exercises such as gymnastics, jogging, swimming, skiing, martial arts, and all types of ball games and team sports. In order to improve or maintain aerobic capacity, exercise intensity should be at 60% of maximum oxygen consumption or above, or at a perceived exertion level of fairly light to somewhat hard. The duration should vary as a function of the type of physical activity, but in general, an average participation duration of at least 200 min/week is considered necessary.

Physical activity to maintain or increase muscle strength should include resistance training that is felt to be fairly hard, and ideally it should be performed two to three times per week for each major muscle group. Excessive physical
Table 1  **Physical Activity Recommendations During Childhood**

<table>
<thead>
<tr>
<th></th>
<th>Daily activities</th>
<th>Outdoor play, hobbies, and leisure activities</th>
<th>Sports and exercise</th>
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<tbody>
<tr>
<td>Early childhood</td>
<td>Accompanying an adult for shopping or a walk to the park</td>
<td>Riding a tricycle or bicycle, playground games, and selected ball games</td>
<td>Exercise, play, or other activities at school or in sport clubs</td>
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<tr>
<td>Late childhood</td>
<td>Walking or bicycling to school</td>
<td>Hiking or swimming</td>
<td>Gymnastics, jogging, skiing, martial arts, and ball games</td>
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<tr>
<th>Exercise intensity</th>
<th>Exercise duration</th>
<th>Special considerations</th>
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<tbody>
<tr>
<td>Early childhood</td>
<td>Specific recommendations on intensity and duration of physical activity have not been established, but it has been suggested that outdoor play should be more than 60 min/day.</td>
<td>1. Participate in a wide variety of physical activities using all parts of the body.</td>
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<tr>
<td>Late childhood</td>
<td>In order to improve or maintain aerobic capacity, exercise intensity should be at 60% of maximum oxygen consumption or above, or at a perceived exertion level of fairly light to somewhat hard.</td>
<td>2. Prevent injury and sudden death.</td>
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<td></td>
<td>Aerobic exercise participation duration of at least 200 min/week is considered necessary.</td>
<td>3. Prevent the development of negative attitudes toward physical activity.</td>
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- Physical activity to maintain or increase muscle strength should include resistance training that is felt to be somewhat hard.
- Strength training should be performed 2–3 times/week for each major muscle group.
activities that require great muscle strength should be avoided until after the adolescent growth spurt.

SPECIAL CONSIDERATIONS

**Encourage Participation in a Wide Variety of Physical Activities.** In order to achieve well-balanced physical growth, it is important that children participate in a wide variety of physical activities that are designed to stimulate strength and endurance throughout the various systems of the body. It is psychologically important that youngsters experience the pleasure and exhilaration associated with regular participation in physical activity. It is hoped that such participation will be valuable in the development of willpower and other positive psychological and social attributes.

**Preventing Injury and Sudden Death.** In instances of extended physical training during childhood, various injuries can occur. With high-frequency, repetitive activity, care must be taken to prevent joint injuries, fractures, sprains, and other overuse injuries. In late childhood, there are occasional instances of sudden death during physical activity, resulting from myocarditis, congenital heart disease, and other medical conditions. Due care is necessary in adjusting the intensity and duration of exercise, as well as regulating environmental conditions, to meet the specific medical and physical restrictions of each child.

**Preventing Development of Negative Attitudes Toward Physical Activity.** Many people who do not exercise or participate in physical activities as adults had unpleasant experiences with physical activity when they were children. Children, during their growth period, are highly sensitive and are beginning to formulate their own value systems. It is important to provide them with positive physical activity experiences that allow them to discover the importance and pleasure associated with using their bodies. The understanding and support of parents and siblings are essential.

**Early Adulthood and Middle Age**

For the purposes of this report, the period of early adulthood and middle age is considered to be from 19–64 years. Early adulthood is the period of life during which many lifestyle habits are established. Middle age is the period during which the majority of lifestyle-related diseases are expressed.

**CURRENT STATUS OF PHYSICAL ACTIVITY PARTICIPATION**

According to the Japanese National Nutrition Survey, early adulthood and middle age are the time periods during which physical activity and exercise rates are the lowest. Specifically, for men, physical activity participation is lowest during their 30s and 40s, whereas for women, participation rates are lowest in their 20s and 30s. The national survey found that distance walked per week is especially low in women between the ages of 20 and 30 years. The physical activities young and middle-aged adults participate in were summarized in the “White Paper for Leisure Activities” and Public Opinion Survey on Physical Strength and Sports.”

According to the National Nutrition Survey, the number of overweight men in early adulthood and middle age is increasing. Individuals who walk little and do
not participate in regular physical activity are more likely to exhibit hypertension and have low HDL cholesterol levels.

GOALS OF PHYSICAL ACTIVITY PARTICIPATION

Early adulthood is the time when an individual enters the workforce, and it marks the foundation on which later life attitudes toward the mind, body, and lifestyle are built. The goals of physical activity during this time period are (a) to preserve and improve health, (b) to prevent or recuperate from disease, and (c) to provide a means of combating stress.

It is now well established that regular participation in physical activity is an effective means of preventing and alleviating obesity, hypertension, hyperlipidemia, diabetes, and many other diseases. Furthermore, hobbies, leisure activities, physical activity, exercise, and sports have been shown to relieve psychological stress and anxiety.

SPECIFIC RECOMMENDATIONS

A summary of the physical activity recommendations for early adulthood and middle age is presented in Table 2.

Maintaining and Promoting Health. Examples of appropriate physical activities for health promotion include (a) everyday activities such as shopping or walking to work; (b) hobby and leisure activities such as weekend carpentry, gardening, and hiking; and (c) exercises and sports such as stretching and calisthenics, walking, jogging, aquatic exercise, skiing, cycling, and various ball games.

Specific recommendations with respect to intensity and duration of physical activity are as follows. Aerobic exercise should be performed at an intensity level corresponding to about 50–60% of maximum oxygen consumption, or to a perceived exertion level of fairly light to somewhat hard. In general, 20 min of exercise per day two or more times a week is desirable. The total duration of aerobic exercise activity should be at least 140–180 min/week and will differ as a function of activity type, age, and fitness. Activities designed to maintain or increase muscle strength should be performed at a perceived training intensity of fairly hard and ideally should be performed two to three times per week for each major muscle group.

Preventing and Recuperating From Disease. Physical activities for preventing and recuperating from disease are necessary for people with chronic medical conditions such as high blood pressure and elevated blood sugar and blood lipids. Oftentimes these individuals do not require specific medical treatments; rather, lifestyle interventions are recommended. For such individuals, safety considerations suggest that physical activity should be primarily aerobic in nature and should be carried out at an intensity slightly lower than would be prescribed for healthy people of the same age.

Examples of appropriate physical activities for this population include (a) light aerobic exercise such as dancing and hiking, as well as hobbies and other leisure-time activities such as hiking or swimming, and (b) aerobic exercise such as walking, jogging, aquatic exercise, and cycling. Exercise intensity should be at kept at a level corresponding to about 50% of maximum oxygen consumption, or at an exertion level perceived as fairly light. The duration should vary as a function of the
Table 2  Physical Activity Recommendations During Early Adulthood and Middle Age

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<tr>
<th>Objective</th>
<th>Daily activities</th>
<th>Outdoor play, hobbies, and leisure activities</th>
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<tr>
<td>Maintain and</td>
<td>Walking to work or</td>
<td>Weekend carpentry, gardening, and hiking</td>
<td>Stretching and calisthenics, walking, jogging, aquatic exercise, skiing, cycling, and various ball games</td>
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<td>Prevent and</td>
<td>Dancing and hiking</td>
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<td>Walking, jogging, aquatic exercise, and cycling</td>
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<td>treat disease</td>
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<td>Manage stress</td>
<td>Gardening, dancing,</td>
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<td>hiking, and outdoor</td>
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<td>Swimming, skiing, and golf</td>
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<td>Maintain and</td>
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type of physical activity. On average, participation for about 140–180 min/week is considered necessary.

**Managing Stress.** Physical activities for the prevention and alleviation of stress are fundamentally no different than those to maintain and improve physical health. It is important, however, to select activities that are enjoyable and that allow the individual to relax. Examples of appropriate stress-reducing physical activities include (a) hobbies and leisure-time activities such as gardening, hiking, and dancing; (b) activities that can be performed at a self-paced rate, such as jogging or cycling; (c) ball games, which permit social interaction; and (d) exercise and sports that can be enjoyed in a natural setting, such as swimming, skiing, and golf.

**SPECIAL CONSIDERATIONS**

**Physical Activity for People With Medical Conditions.** Physical activity is necessary for people with medical problems; however, special care must be taken. It is appropriate to consult with a physician prior to engaging in a new program of physical activity. Individuals with hypertension should be discouraged from participating in physical activities that require them to hold their breath for extended periods of time under conditions of high strain. Individuals who are obese or very overweight should be encouraged to participate in activities that minimize the load placed on their knees and ankles. Appropriate activities include walking, cycling, and swimming and other aquatic exercise.

**Old Age**

For the purposes of this report, old age is considered to be age 65 and above. It is important to note that there is tremendous variability in physical functioning in old age. For many individuals there is a considerable gap between their chronological age and their physical or biological age. For this reason, the recommendations for the old-age group might also be appropriate for younger people who are very deconditioned. Similarly, there are many people over the age of 65 who have no medical problems and who are in excellent physical condition. These individuals can safely follow the physical activity recommendations for young and middle-aged people.

**CURRENT STATUS OF PHYSICAL ACTIVITY PARTICIPATION**

According to the Japan National Nutrition Survey, a relatively high proportion of men (40.3%) and women (32.7%) over the age of 70 years exercise regularly. Compared with young adults and middle-aged people, a larger proportion of older people report that they are concerned about their health. However, at least 50% of seniors do not exercise regularly, and more than 40% walk only infrequently.

The Japanese Comprehensive Survey of Living Conditions of People on Health and Welfare reports that 20% of the older adult population experience significant difficulties in performing activities of daily living. These disabilities prevent them from going outside (11%) and from participating in the workforce (10%). The same report surveyed the physical activity preferences of older people, which were found to be walking, gateball, calisthenics, fishing, and light swimming. It is now well established that regular physical activity is necessary to preserve independence and maintain quality of life in older people.
GOALS OF PHYSICAL ACTIVITY PARTICIPATION

The goals of physical activity for older people are broadly classified as (a) to preserve and improve health and prevent or recuperate from disease; (b) to support and improve independence and self-reliance, especially for those in advanced old age (75 years and older); and (c) to add meaning to life, enhance self-satisfaction, and facilitate social interaction.

There is a wide variety of reasons that older people should be physically active, ranging from health promotion and disease prevention to improved quality of life and the preservation of independence in activities of daily living. It is now well established that older people can safely participate in physical activity and that such participation can have beneficial effects for the prevention and treatment of many diseases and conditions.

SPECIFIC RECOMMENDATIONS

A summary of the physical activity recommendations for older adults is presented in Table 3.

Maintaining and Promoting Health and Preventing and Treating Disease. Most people in early old age have a considerable interest in preserving their health status. It is now clear that it is possible to adopt lifestyle choices that maximize health and reduce the likelihood of suffering from chronic disease. Physical activity choices for health promotion and disease prevention should involve a combination of many activities rather than focus on a single activity mode.

Examples of appropriate physical activities for health promotion and disease prevention in older people include (a) everyday activities such as shopping or walking; (b) hobby and leisure activities such as weekend carpentry, gardening, and hiking; and (c) exercises and sports such as stretching and light calisthenics, walking, jogging, aquatic exercise, gateball, and golf.

Specific recommendations with respect to intensity and duration of physical activity vary as a function of the age and health status of the older person. In general, 20 min of exercise per day two or more times a week is desirable. Aerobic exercise should be performed at an intensity level corresponding to about 50% of maximum oxygen consumption, or to a perceived exertion level of fairly light. The total duration of aerobic exercise activity should be at least 140 min/week.

Maintaining or Improving Independence. In later old age, many people have a comparatively low capacity for physical activity. Accordingly, activities for preserving and maintaining independence should incorporate as diverse a range of experiences as is safely possible. Age-related changes that present problems for independence include loss of muscle strength and reduced range of motion in the joints. Consequently, activities designed to improve and maintain independence focus on these aspects of functional performance.

Examples of appropriate physical activities for preserving independence in older people include (a) everyday activities such as cleaning, cooking, shopping, or going for walks; (b) hobby and leisure activities such as gardening; and (c) exercise and sports such as stretching and light calisthenics, walking, gateball, and aquatic exercise.

Specific recommendations with respect to intensity and duration of physical activity vary as a function of the age and health status of the older person. In general, aerobic exercise should be performed at an intensity level corresponding to about 40–50% of maximum oxygen consumption, or at a perceived exertion level of fairly
### Table 3 Physical Activity Recommendations During Old Age

<table>
<thead>
<tr>
<th>Objective</th>
<th>Daily activities</th>
<th>Outdoor play, hobbies, and leisure activities</th>
<th>Sports and exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain and improve health and prevent and recuperate from disease</td>
<td>Going for walks or shopping</td>
<td>Weekend carpentry, gardening, and hiking</td>
<td>Stretching and light calisthenics, walking, jogging, aquatic exercise, gateball, and golf</td>
</tr>
<tr>
<td>Add meaning to life, enhance self-satisfaction, and facilitate social interaction</td>
<td>Karaoke, shopping, gardening, carpentry, volunteer activities, fishing, hiking, and mountain climbing</td>
<td>Calisthenics and golf</td>
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</table>

#### Exercise intensity

- **Maintain and improve health and prevent and recuperate from disease**
  - Aerobic exercise intensity level 50% of maximum oxygen consumption, or to a perceived exertion of fairly light.

- **Maintain or improve independence**
  - Aerobic exercise intensity level corresponding to about 40–50% of maximum oxygen consumption, or at a perceived exertion of fairly light to very light.

#### Exercise duration

- Aerobic exercise duration should be at least 20 min 2 or more times/week for a total of about 140 min/week or more.

- Aerobic exercise duration will depend on the physical ability of each person. A good target is about 140 min/week.

#### Special considerations

1. Postpone losses in muscle strength and muscle mass.
2. Be aware of medical problems during exercise.
3. Reduce risk of accidents and falls.
light to very light. The total duration of aerobic exercise activity will depend on each individual’s strength and endurance, but a good target is about 140 min/week.

Safety considerations suggest that relatively light resistances be used if muscle-strengthening exercise is performed. Furthermore, regular and rhythmic breathing should be encouraged, and holding the breath should be discouraged. Resistance training should be performed about two to three times per week.

Adding Meaning to Life, Enhancing Self-Satisfaction, and Facilitating Social Interaction. Physical activities that add meaning to life, enhance self-satisfaction, and facilitate social interaction span a wide range of different activities, from exercises and sports to hobbies and leisure activities. Examples of appropriate activities include (a) hobbies and leisure-time activities such as karaoke, shopping, gardening, hiking, fishing, and dancing and (b) exercises and sports such as calisthenics, gateball, and other group activities.

SPECIAL CONSIDERATIONS

Loss of Muscle Strength. Loss of muscle strength is a significant problem in old age. Minimal levels of muscle strength are necessary to permit locomotion and to support one’s own weight. Loss of strength is a major threat to independence and greatly restricts the physical and social activity choices available to older people. Increasing muscle strength is thus an important goal for physical activity in older people. Although such activity is highly recommended, safety considerations are important, and these factors will necessarily guide specific exercise prescriptions.

Medical Problems During Exercise. Sudden death during exercise among older people is fairly common in activities such as golf and mountain climbing, so appropriate caution is warranted. A common characteristic of both of these activities is extensive walking over undulating terrain. Older people should be advised to consult with a physician as necessary, and to avoid pushing themselves unduly. Physical activities that can be performed at a self-paced rate are preferred.

Avoiding Accidents in Everyday Life. Falls among older people are a major health care risk. In one recent report, 21% of older individuals reported having recently experienced a fall. Accordingly, it is important that older people be careful to avoid falls and the resultant fractures and loss of mobility and independence. Physical activities that help reduce the risk of falls include (a) activities and exercise that increase lower body strength, (b) activities that allow the hands to be kept free to assist with balance, and (c) walking with appropriate shoes on surfaces that minimize the risk of falling.

Women

Physical activity recommendations for women are generally similar to those for the population as a whole, but women are unique to the extent that they experience menstruation, childbirth, child rearing, and menopause, each of which is associated with specific health and physical activity considerations. In addition, older women have specific physical activity goals including the prevention and management of diseases such as osteoporosis.
CURRENT STATUS OF PHYSICAL ACTIVITY PARTICIPATION

According to the Japan National Nutrition Survey, the number of women of all ages who exercise regularly is consistently lower than it is among men. Compared with men of the same age, young women in their 20s are significantly more likely to be sedentary. Similarly, young women in their 20s walk less and exercise less frequently than older women (age 30–50 years). This is of particular concern because this is the most common age range in which pregnancy and childbirth occur.

SPECIAL GOALS OF PHYSICAL ACTIVITY PARTICIPATION

Considering the special physical characteristics of women, the physical activity goals that are unique to women are as follows: (a) to preserve and improve women’s health, (b) to reduce the symptoms of menopause, and (c) to prevent and treat osteoporosis. It is important to stress that these goals are additional to the other goals described in the preceding sections on childhood, early adulthood and middle age, and old age, which are universal and apply to both men and women.

SPECIFIC RECOMMENDATIONS

A summary of the physical activity recommendations for women is presented in Table 4.

**Maintaining and Promoting Women’s Health.** Physical activities that maintain and improve women’s health are generally similar to those described earlier for the maintenance and promotion of health in young adulthood, middle age, and old age. Examples of appropriate physical activities include (a) everyday activities such as shopping or walking, (b) hobby and leisure activities such as gardening and hiking, and (c) exercise and sports such as stretching and light calisthenics, walking, jogging, aquatic exercise, gateball, and many ball games.

An appropriate level of physical activity during pregnancy is thought to be beneficial. The American College of Obstetrics and Gynecology has issued physical activity guidelines for expectant and nursing mothers. These guidelines suggest that regular walking and supplementary stretching and light calisthenics are appropriate, but strenuous exercise or activities that require holding the breath are not encouraged. It is important that pregnant women seek advice from, and follow the directions of, their primary care physician. To prevent spontaneous abortion or premature delivery, it is important that pregnant women obtain a medical examination prior to commencing a physical activity program.

**Alleviating Symptoms of Menopause.** Daily activities such as housework or a job outside the home have little effect on improving the symptoms of menopause, but hobbies, leisure activities, sports, and exercise might have a more positive influence on reducing or dissipating these symptoms. Examples of appropriate physical activities include exercises and sports that can be performed easily and that lead to feelings of exhilaration and enjoyment.

**Preventing Osteoporosis.** In order to prevent osteoporosis it is necessary to (a) increase bone mineral density as much as possible before age 30, (b) minimize the loss of bone mineral density that occurs during the 10-year period surrounding menopause, and (c) slow the general decline in bone mineral density that accompanies
### Table 4 Specific Physical Activity Recommendations for Women

<table>
<thead>
<tr>
<th>Objective</th>
<th>Daily activities</th>
<th>Outdoor play, hobbies, and leisure activities</th>
<th>Sports and exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain and improve women’s health</td>
<td>Going for walks or shopping</td>
<td>Gardening and hiking</td>
<td>Stretching and light calisthenics, walking, jogging, aquatic exercise, and ball games</td>
</tr>
<tr>
<td>Alleviate symptoms of menopause</td>
<td>Hobbies, leisure activities, sports, and exercise might assist in reducing or dissipating symptoms of menopause. Examples include exercises and sports that can be performed easily and that lead to feelings of exhilaration and enjoyment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevent and treat osteoporosis</td>
<td>1. Exercises and sports that include jumping or stepping movements 2. Exercises that build muscle mass 3. Weight-bearing exercises such as walking, running, and dancing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exercise intensity</th>
<th>Exercise duration</th>
<th>Special considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain and improve women’s health</td>
<td>Physical activities that maintain and improve women’s health are similar to those for the maintenance and promotion of health in middle age.</td>
<td>Improving lifestyle choices</td>
</tr>
<tr>
<td>Alleviate symptoms of menopause</td>
<td>Physical activities that alleviate symptoms of menopause are similar to those for the maintenance and promotion of health in middle age.</td>
<td></td>
</tr>
<tr>
<td>Prevent and treat osteoporosis</td>
<td>Activities to help prevent osteoporosis are similar to those used to develop a healthy mind and body in the growth period and to maintain and improve health in young adulthood and middle age.</td>
<td></td>
</tr>
</tbody>
</table>
old age. Thus, physical activity interventions for the prevention and treatment of osteoporosis are needed at all stages of the life cycle.

Activities that are helpful for preventing osteoporosis include (a) exercise and sports that include jumping or stepping movements, (b) resistance training and other exercises that build muscle mass and strength, and (c) weight-bearing exercises such as walking, running, and dancing. In addition, attention must be paid to nutritional factors. The average adult requires about 600 mg of calcium per day, whereas the requirement for pregnant women and nursing mothers is as high as 900–1,100 mg/day.

**Improving Lifestyle Choices.** A recent questionnaire survey revealed that about 26% of young Japanese women had dieted. This is a concern because many women who diet are at increased risk for developing osteoporosis later in life. Because young women are also the population group that is least likely to exercise, it is necessary to focus on both of these lifestyle choices when designing health promotion programs for young women.

**Appendix**

MEMBERS OF THE COMMITTEE ON PHYSICAL ACTIVITY GUIDELINES FOR HEALTH PROMOTION BY AGE AND OBJECTIVE

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