

Healthy Aging

Physical Activity and Older Adults

*Our mission is to help the people of Canada
maintain and improve their health.*

Health Canada

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Foreword

This document on Physical Activity and Older Adults was developed as a background paper for the *Workshop on Healthy Aging: Aging and Health Practices*, organized by Health Canada's Division of Aging and Seniors in November 2001. Following a series of internal investigations, the Division identified four key determinants that play key roles in healthy aging: healthy eating, injury prevention, physical activity, and smoking cessation. The Division convened a workshop to solicit the advice of experts and stakeholders on the development of an action plan on healthy aging, with a specific focus on the four areas noted above. Prior to the workshop, participants were provided with a series of background papers viewing the four key determinants through a healthy aging lens. This document is a revised version of one of the paper on physical activity, incorporating comments from experts and stakeholders.

A. Overview of the Issue

Significance of the Issue

According to a substantial body of scientific evidence, regular physical activity can bring significant health benefits to people of all ages and abilities. Media spokespersons and health professionals often tout the benefits of exercise for younger and middle-aged people. But physical activity is beneficial irrespective of age, and the need for physical activity does not end in later life. Scientific evidence increasingly indicates that physical activity can extend years of active independent living, reduce disability and improve the quality of life for older persons as well.

Physical inactivity also has a critical impact on health. The U.S. Surgeon General has declared that a sedentary lifestyle is “hazardous to your health,” and estimates sedentary living to be as dangerous to one’s health as smoking a pack of cigarettes a day. Inactivity leads to declines in bone strength, muscle strength, heart and lung fitness and flexibility. Inactivity is a key contributor to most of the chronic and debilitating diseases associated with aging and for a significant number of preventable deaths.

Increasing daily energy expenditure by all Canadians of every age is a well-known health promotion and disease prevention resource that is as important as smoking cessation for public health. Regular enjoyable exercise is currently the most significant route to better health, and is a more straightforward and economical means to lifelong health than medication and acute care. In light of the strength of the evidence on the benefits of physical activity, the focus of future actions resides mainly in the identification and implementation of successful interventions for older adults.

Magnitude of the Problem

A large proportion of older adults do not engage in sufficient levels of physical activity to maintain or promote their health. Older adults represent the most sedentary segment of the adult population: inactivity increases and participation in vigorous activities declines with age. There is an important reduction in activity levels between the 65 to 74 and the 75 or older age groups, which is greater than the slow growth of inactivity levels from 25 years of age onwards.

Different organizations have tried to estimate levels and frequency of physical activity using different yardsticks, with similar findings. According to *Canada’s Physical Activity Guide to Healthy Active Living for Older Adults*, 60% of older adults are not sufficiently active to achieve optimal full health benefits. According the National Population Health Survey (NPHS) data, 14% of seniors were sufficiently active, 21% were moderately active and 65% were inactive. Inactivity levels increase from 59% for adults 55 to 64 years of age to 60% for seniors 65 to 74 years of age to 74% for seniors 75 or older. Inactivity levels among seniors 65 or older could reach 79%, based on the standards used by the Canadian Fitness and Lifestyle Research Institute (CFLRI). Statistics Canada reports that 32% of seniors have a low frequency of physical

activity, while CFLRI reports that 28% of seniors have energy expenditures associated with sedentary lifestyles.

Due to high physical inactivity levels, older adults, in general, are at higher risk for poor health. Within this age group, several key populations are particularly vulnerable to reduced levels of physical activity:

- seniors with low incomes or low education levels
- the oldest seniors
- seniors living in institutions
- seniors with illness, disabilities or chronic diseases
- senior women, as infrequent participation in physical activity is higher by 9% in women than in men; 19% of men are considered active compared to 13% of women, and women tend to be involved in less exerting forms of activity
- isolated seniors.

These key at-risk segments of the older adult population are also those most likely to encounter barriers to participation in physical activity. It should also be noted that certain factors such as illness and isolation, which act as modifiers on the level of physical activity, can themselves be affected by the level of physical activity, indicating the presence of interactions and feedback mechanisms.

Addressing the risk behaviour of physical inactivity or sedentary living requires an understanding of the broader “cultural” and “social” context of individuals. A key challenge is enabling or motivating older adults to engage in active living, especially among sedentary populations. This requires a greater understanding of the role of broader health determinants in physical activity, the impact on seniors’ activity, and points to the need to invest in comprehensive approaches such as public education, behavioural programs, environmental and policy interventions, and capacity building for the health system. A key issue may well be how to increase the value given by society to physical activity, to create a social culture that facilitates and encourages active living at all ages through appropriate and inclusive approaches.

Trends

Despite substantial improvement in physical activity participation during the 1980s and early 1990s, progress has now stalled.

The proportion of seniors with inadequate levels of activity fluctuated between 1981 and 1998. According to the CFLRI, the proportion of seniors not active enough fell from 81% in 1981 to 70% in 1988, and then increased to 79% in 1998. NPHS data indicate no net increase in leisure-time physical activity levels between 1994/95 and 1996/97, with 4% of seniors increasing and 4% decreasing their participation in physical activity. During this time period, 15% of seniors began participation in physical activities, but 16% lapsed into inactivity. Meanwhile, CFLRI reports that seniors are less likely than younger age groups to seriously contemplate being active in the future.

Currently, there do not appear to be conclusive trends identified for active living in later life. Whether targeted increases in activity level are met or the recent plateau persists, three key factors suggest important *challenges for addressing physical inactivity in the future*:

- current high levels of inactivity among older adults, despite important efforts to encourage increased activity in the last decades
- the upcoming growth in the number of seniors due to the aging of baby boomers
- the rapid growth of the 75 and older age group, where inactivity levels are highest.

Some Key Considerations

Key considerations that affect the participation of older adults in physical activity and the types of activities they pursue include:

- societal and cohort norms and beliefs that physical activity benefits decline with age
- personal attitudes toward active living, and personal capacities such as social participation skills
- awareness and knowledge concerning active living and its benefits
- fear among seniors of harm, injury and death from participation in physical activity
- illness and disability
- supportive communities and environments
- time constraints and barriers to participation such as caregiving burden.

As well, other factors that will influence the success of physical activity interventions for older adults include:

- responding to the diverse nature and needs of a given older adult population
- considering the various types of approaches and models to determine which one is most appropriate for the given situation (e.g. one-on-one intervention, group interventions, lifestyle approach, social infusion model)
- identifying and addressing barriers to participation, including motivational factors and accessibility (e.g. transportation, location, cost)
- evaluating past and current interventions to identify “what works and what doesn’t”
- involving older adults in the development and implementation of interventions
- establishing contact with key health professionals, care agencies and community organizations that can refer seniors or encourage their participation
- creating awareness of the program among its intended clientele
- working in the long term – ensuring program sustainability or the ongoing participation of seniors in the program.

Compelling Evidence Linked to Healthy Aging

Physical activity is generally associated with the following positive outcomes:

- improved physical health
- support to disease prevention, control or management
- improved mental health
- enhanced emotional and social well-being
- increased autonomy and independence.

Physical activity has been shown to achieve health-related benefits, maintain functional ability, enhance psychological health, and reduce the risk for chronic diseases and health problems, such as (in no specific order):

- arthritis
- heart attacks and stroke
- cardiovascular disease
- type 2 adult-onset diabetes
- colon and breast cancer
- osteoporosis
- hypertension
- anxiety
- stress-related conditions
- mild to moderate depression
- obesity
- back pain
- falls and unintentional injuries.

Regular physical activity is also necessary for maintaining muscle strength, coordination, joint function and flexibility. It is a contributor to functional and cognitive capacity, and by facilitating the activities of everyday life, it supports autonomy and well-being. Physical activity also plays a rather unique role in healthy aging as it acts as a sort of core element to other positive health-promoting behaviours. For example, the risk factors of malnutrition, frailty and sedentary living are interrelated; conversely, increased levels of physical activity (safely undertaken) can lead to the prevention of injuries, and the lowest users of tobacco products can be found among the most active population.

Research shows that even moderate physical activity can improve health. A recent Statistics Canada report, based on NPHS data from the 1994/95 and 1996/97 cycles, showed that, once other risk factors were controlled for, the age-adjusted two-year incidence of heart disease and depression declined with increasing levels of physical activity. Of note, differences in incidence were observed between individuals with sedentary and moderate levels of activity, but differences were not statistically significant between moderate and active levels.

Conversely, chronic inactivity is associated with negative health outcomes such as premature death, chronic diseases, illness and disability, as well as reduced quality of life and independence. Some evidence suggests sedentary persons may be more likely to engage in

unhealthy behaviours such as tobacco use and substance abuse and that, conversely, physical activity leads to other positive lifestyle behaviour choices and changes.

Consequences if the Issue is not Addressed

Physical activity has been shown to contribute to a reduction in illness and premature death, and to the containment of health care costs. As noted in a CFLRI report:

- One quarter of deaths from heart disease in 1993 were the result of physical inactivity.
- The 16% increase between 1981 and 1995 in the number of Canadians active enough to reduce the risk of heart disease translates into savings of \$700 million over that period, and \$190 million in 1995 alone.
- The Conference Board of Canada estimated that a 1% increase in physical activity could lead to annual health care savings of \$10.2 million for ischemic heart disease, \$877,000 for adult-onset diabetes and \$407,000 for colon cancer.
- A 1995 study by the CFLRI estimates that a reduction of 10% in physical inactivity among Canadians would result in savings of \$5 billion in discounted lifetime costs for medical care, sick leave and lost revenues from taxes resulting from premature mortality.

It is estimated that costs associated with premature deaths could be reduced by as much as 25% if inactive Canadians became more active. Various studies also suggest that regular physical activity throughout life reduces the risk of death in adults 60 years of age or older, an association greater than among younger age groups. However, there is no definitive quantifier for this reduction of between 30% and 50% in the risk of death in the follow-up period for these studies of between 4 and 17 years, during which time mortality rates of seniors undertaking regular physical activity were compared to those of seniors with sedentary lifestyles. Physical activity must be a current and continued practice to be beneficial; physical activity in mid-life that is discontinued in later life has no long-term benefits, whereas physical activity initiated in older adulthood and further sustained in later life may result in substantial health gains.

Such health outcomes of physical inactivity also yield important societal consequences. Reduced health status in later life not only leads to important health care costs, but also to a reduction in volunteering, an increase in caregiver burden, a decrease in the capacity for self-care, a reduction of labour force participation, and an increase in early retirement by older workers. While difficult to quantify, reduced participation of seniors in society is a general outcome of physical inactivity.

Effectiveness of Interventions

There is conclusive evidence that active living is a key contributor to health. The strength of the evidence varies from weak or suggestive to conclusive, depending on the issue or health outcome under consideration. Studies have shown the effectiveness of specific program models in improving physical health in areas such as flexibility, muscular strength, cardiovascular fitness, and functional capacity, among others. Evidence also shows the benefits of cumulative moderate physical activity – emphasizing the importance of making effective and sustaining

lifestyle changes involving continued physical activity in activities of daily living rather than participation in “fitness” programs.

However, King et al.’s review states that there is a lack of studies assessing “specific behavioural or program-based strategies aimed at promoting physical activity participation, as well as [a] dearth of studies aimed at replication, generalizability of interventions to important sub-groups, implementation, and cost-effectiveness evaluation” (p. 316). In short, it is known what older adults should do, but not necessarily how to enable and motivate them to become active and stay active over time. The success of long-term interventions that promote the maintenance of an active lifestyle is unclear.

The “Samuel Report” indicates that the most effective physical activity interventions are community-based and targeted at specific sub-populations. Research points most strongly to multi-pronged, comprehensive approaches that incorporate education and awareness raising, community-based programs and home-based interventions.

There is little evidence on which interventions work and how they work in “real life” community settings. There is a need to augment laboratory-based, investigator-driven research with practitioner and community-centred research. Development of the evidence base for the effectiveness of population health and health promotion interventions in physical activity is crucial if health gains are to be achieved and expanded across Canada.

A report by the International Union for Health Promotion and Education identifies that participation rates in exercise trials tend to be low, and raises concerns about the feasibility of mass exercise schemes among the older population. Many health promotion initiatives include exercise as an integral component; however, only a few have reported whether or not the activity was successful in increasing physical activity levels. A commitment to health promotion via physical activity has to be long term as benefits do not last once activity stops.

The World Health Organization (WHO) states that it is both beneficial and cost-effective to help sedentary individuals residing in the community to take up moderate levels of physical activity. More benefit is likely to be gained from activating the sedentary than from persuading those who are already active to become more active. Moderate activities, including walking, gardening and safe activities involving weight lifting are beneficial. The WHO suggests:

- If older persons are to relinquish a sedentary lifestyle, they must have the means and opportunities to do so.
- Partnerships are required to effectively promote and increase active living by older people in both community and institutional settings.
- Health professionals caring for middle-aged and older adults need to encourage them to be physically active.

- Culturally appropriate, population-based guidelines for physical activity are important because they provide people with information on recommended types of physical activity.

- Social and productive activities requiring less physical exertion can complement physical activities and provide alternative interventions for frail older persons.

B. Support for Action

Partners for Action

Public interest

Due to sustained efforts to promote fitness and physical activity in the last 25 years, there is widespread awareness and recognition of the importance of active living as a determinant of health, and of the benefits to individuals and the health sector. This recognition can be seen in public opinion surveys on the value of physical activity, the number of voluntary sector organizations promoting active living, the capacity and infrastructure of the broad active living sector, and government support to active living initiatives at the federal, provincial, territorial and local levels.

The level of support for active living in later life would appear to be less than that for active living in general. It may be possible that this reflects differing societal norms and public opinion. In a recent survey by The Berger Population Health Monitor, it was reported that those seniors and near-seniors most likely to benefit from improvements in their lifestyle are among the least likely to believe it will do them any good. The same survey identified that a personal belief in the effectiveness of one's own actions is consistently rated as the single most important component of a healthy life by everyone over the age of 45, regardless of region, age, income, education and health status. Any recommended strategies for future action will need to incorporate these findings into a more effective mix of policy and program initiatives.

Current federal government strategies

In recent years, Health Canada has been most active in the following areas:

- policy development and frameworks for action, such as the federal, provincial and territorial framework for action, *A Blueprint for Action for Active Living and Older Adults*
- partnership development, notably beyond the fitness and physical activity sector
- health promotion activities aimed at increasing participation among the seniors population, most importantly *Canada's Physical Activity Guide to Healthy Active Living for Older Adults*
- coalition building (e.g. Active Living Coalition for Older Adults)
- support to the fitness and physical activity sector
- development of programming models, primarily via community funding
- support to surveys and data analysis (e.g. *Physical Activity Benchmarks* and the "mining" of NPHS data)
- support to major physical activity campaigns (e.g. National Walking Campaign).

Recent investments by Health Canada in active living and older adults include:

- support from the Fitness and Active Living program of \$809,000 in 1998-99 and \$506,000 in 1999-2000

- announcements of support for new projects under the Population Health Fund of \$212,148 in 1998-99 and \$261,350 in 1999-2000

Future Health Canada interventions in the area of active living are expected to follow the directions set forth in the federal, provincial and territorial document *Physical Inactivity: A Framework for Action* and in *Moving Through the Years: A Blueprint for Action for Active Living and Older Adults*. The *Framework for Action* sets health, social and economic aims and specific objectives to guide joint actions to reduce physical inactivity, such as:

- reducing the proportion of inactive Canadians by 10% between 1998 and 2003
- reducing the avoidable burden of chronic disease and premature death associated with physical inactivity
- reducing the burden of unnecessary activity limitation and dependence in activities of daily living associated with aging, due to physical inactivity
- engaging people in lifelong physical activity which promotes and supports individual health and a commitment to community health and wellness
- helping build healthy communities that improve individual and collective quality of life
- lowering health care system costs by reducing unnecessary hospitalizations, visits to the doctor, drug use and sick days resulting from preventable sickness or disorder caused by physical inactivity.

The *Blueprint for Action* presents guiding principles, and identifies priority goals:

- increase public awareness about the benefits of active living
- develop competent leaders in active living who can meet the needs and interests of the older adult
- support and encourage seniors' desire to embrace an active lifestyle by ensuring that resources and social supports are in place
- strengthen delivery systems and improve levels of cooperation, coordination and communication among interested organizations
- encourage and enable older adults to advocate for a quality of life that includes physical activity, well-being and opportunities for active living
- identify, support and share research priorities and results
- continually monitor and evaluate programs, services and outcomes.

There are important gaps in assessing and demonstrating the impact of given initiatives and activities on lasting behaviour change. This is especially true for initiatives addressing complex issues such as societal norms. It should also be noted that the general nature of messages concerning the promotion of physical activity, such as recommended increases in frequency and intensity, suggests that there are opportunities to provide more directive, targeted recommendations to consumers regarding the most appropriate and most effective physical activity regimens.

This concern is shared by similar initiatives pertaining to other personal health practices. It may be possible to estimate the potential effectiveness of some approaches by comparing them to counterparts in other areas (e.g. comparing the *Physical Activity Guide to Canada's Food Guide*).

Other areas of Health Canada

There is an identified, dedicated capacity within Health Canada to address active living – the Fitness and Active Living Unit of the Population and Public Health Branch (PPHB). This section has key expertise and resources in the area of active living, and conducts programming and partnership development in this area. As well, it coordinates the support to the active living non-governmental sector via the current “Fitness” commitment, which is a ministerial commitment to support active living programs and initiatives including the operations of the Fitness and Active Living Unit. Currently, funding is available yearly to non-governmental partners and stakeholders.

Other areas of Health Canada could be involved in active living efforts in later life because of their expertise and resources in adjunct areas, the opportunities for integrated initiatives, and the potential for learning across issues. These include:

- the Division of Aging and Seniors, which deals with seniors and aging issues
- PPHB Regions, which deal with later life issues and community capacity building
- the Centre for Chronic Disease Prevention and Control, which is responsible for reducing the burden of chronic disease in Canada
- Health Canada divisions involved in personal health practices that link closely to active living, such as the Nutrition and Healthy Eating Unit or the Office of Tobacco Reduction Programs
- Health Canada divisions active in areas associated with key levers, such as the Canadian Diabetes Strategy and its prevention and promotion contribution program.

Health Canada can also make use of its linkages with the Canadian Institutes of Health Research and its Institute on Aging, to leverage research funding or to bring greater attention to research on physical activity. There also exists capacity in the form of the survey data sources (e.g. NPHS), program models and experience such as community-funded project evaluations, and information and educational resources that are currently available within Health Canada.

Other government sectors

Federal, provincial and territorial capacity exists concerning active living, most notably to support the work of the federal, provincial and territorial Ministers Responsible for Fitness, Recreation and Sport. This capacity is mostly directed toward supporting and implementing the *Framework for Action* and the attendant initiatives undertaken jointly or independently. It should be noted that the *Framework for Action* engages departments other than those relating to health, because of its inclusion of social and economic aims.

As well, there is broad interest in and support for active living among government health agencies across all levels and jurisdictions. For example, numerous public health departments have developed and implemented health promotion and disease prevention initiatives that feature active living as their primary focus or in conjunction with other related issues, such as healthy eating. However, a relatively modest proportion of such programs target seniors, and fiscal restraint has seen some agencies shifting their promotion and prevention efforts away from active living toward other key areas such as smoking cessation.

Non-governmental organizations

There is a large infrastructure of non-governmental organizations with a primary mandate in active living and/or physical activity. Key organizations for partnership opportunities include the Active Living Coalition for Older Adults (ALCOA), the Canadian Centre for Activity and Aging, the Canadian Fitness and Lifestyle Research Institute (CFLRI), among others. As well, there are a number of academics in universities across Canada who conduct research on physical activity or who train those who will work with older adults. Other organizations involved in active living and fitness, but with a limited focus on later life, could be approached for partnership opportunities to broaden their involvement in healthy aging. A number of organizations have an interest in active living because of its positive impact on their area(s) of interest or their constituency. For example, over 90% of the more than 50 national organizations that endorsed *Canada's Physical Activity Guide to Healthy Active Living for Older Adults* do not have active living as their primary focus. The work of these organizations, led by the Canadian Society for Exercise Physiology, was crucial in promoting and disseminating the guide.

Possible partners include seniors organizations, seniors-serving and aging organizations, and issue-oriented organizations where active living is a key determinant. There may be a need to develop active living capacity and involvement within certain segments of these organizations. Additionally, there may be a need to facilitate the inclusion of healthy aging interests for other organizations not currently involved with older adults and seniors. The necessary support for these groups need not be financial, but may take other forms such as information sharing, partnership development and expertise building. However, funding may become an important consideration for larger or sustaining initiatives delivered in collaboration with the voluntary sector, and notably seniors organizations.

In addition, a number of local and provincial organizations across Canada, including seniors organizations, have undertaken physical activity initiatives targeting older adults. Such initiatives have tended to be small and localized, and may not be well known outside their community. This presents a host of potential local partners for future initiatives, and also offers a reservoir of untapped knowledge and experience from practitioners in the field. Unfortunately, many local initiatives have not been evaluated, but there would be benefits in developing inventories of recent programs, undertaking an analysis of “best practices,” and facilitating the sharing of knowledge across communities.

Other partners

Other partners that have capacity in the area of active living and could be targeted for information sharing or partnership development include international organizations or government agencies, and Canadian and international researchers and university departments.

Gaps and Challenges

The key gaps and challenges in addressing physical activity among seniors include:

- evaluating the effectiveness of active living interventions on long-term participation and compliance

- facilitating the integration of active living considerations in interventions on issues for which active living is a key determinant, by partners whose primary focus is not active living
- harmonizing efforts among the numerous partners
- developing and broadening partnerships with partners and sectors that play a key role in supporting active living.

These could be addressed through additional coordination, liaison, partnership development and knowledge development.

Recommended Strategies for an Action Plan on Healthy Aging

The following key strategies are recommended:

- develop a better understanding of the determinants of decreasing physical activity as a function of age among older adults
- identify and address persistent barriers and disincentives to active living and perceived control on the choice to be active in later life
- provide accurate, standardized and authoritative information to the public on the benefits of active living, the consequences of inactivity and recommended activity levels in older age, and refine current messages and recommendations to better address the specific issues faced by older adults as needed
- develop and evaluate programs and intervention models that are appropriate and attractive to at-risk sub-groups
- maintain and disseminate information on activity levels as needed
- facilitate and strengthen the harmonization and integration of active living approaches in interventions targeting health issues for which active living is a key determinant
- develop and strengthen supports to communities and environments that foster and sustain active living
- develop a better understanding of the effectiveness of recent approaches to promote active living among older adults.

In light of current evidence and experience, an area that requires particular attention is how to enable or motivate older adults to participate in physical activity programs – notably in regards to motivational barriers and barriers to participation. Other areas that should be addressed include the development and evaluation of models targeting key at-risk groups, and the assessment of recent approaches.

Health Canada can play a direct role in all the above-suggested interventions. Health Canada should also ensure that physical activity is an integral component of future health promotion initiatives targeting older adults. However, in light of limited resources and current commitments to collaborative efforts, it would be more appropriate for Health Canada to take on leadership, catalyst and supportive roles, as well as support initiatives where progress would be limited without Health Canada involvement. It will be important that resources are leveraged to foster increased knowledge development and evaluations, and to make strong arguments and

propose innovative approaches to trigger the interest and participation of other sectors in partnership initiatives.

Required investment

Health Canada is currently making important investments in the area of active living and healthy aging. The need for new resources may not be as pressing as the need for more strategic use of current resources. However, this does not preclude the need for new resources, notably in areas where this would facilitate a more strategic use and leveraging existing resources.

Key areas for such new resources would be:

- a small coordinating element to orchestrate active living initiatives in later life, foster the integration of active living considerations in the initiatives of others, and develop partnerships and leverage resources
- knowledge development in key areas (e.g. best practices and assessments of effectiveness), to provide guidance for future interventions.

It may be necessary, however, to find resources for future interventions, should the leveraging of resources or partnership development have limited success, or should it not be possible to redirect Health Canada resources currently targeted to other areas.

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