Environmental and Policy Strategies to Increase Physical Activity Among Adults With Arthritis

ARTHRITIS FOUNDATION®

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Table of Contents

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Introduction

Arthritis affects 50 million adults and is the most common cause of disability in the United States.[1, 2] Currently, 22.2 percent of the adult (>18 years old) U.S. population has arthritis.[2] Comprising more than 100 different rheumatic diseases and conditions that affect joints and tissues, arthritis causes many Americans serious pain, aching, stiffness, and swelling.[3] Physical activity is an important but underused intervention for adults with arthritis that decreases pain, delays the onset of disability, improves physical functioning, mood and independence, and enhances quality of life, aerobic capacity, and muscle strength.[4-15] This document is designed to engage six important sectors as partners with a mutual interest in increasing physical activity among adults with arthritis using environmental and policy strategies.

Developing Environmental and Policy Strategies to Increase Physical Activity Among Adults With Arthritis

In 2010, the Arthritis Foundation (AF), the Centers for Disease Control and Prevention (CDC), and partners collaborated to produce A National Public Health Agenda for Osteoarthritis, which focused on the most common form of arthritis. The publication outlined a blueprint for recommended intervention strategies, policies and communication initiatives, and research to reduce the burden of this priority public health issue. Featured were four intervention strategies deemed ready for widespread public health dissemination: physical activity, self-management education, injury prevention, and weight management and healthy nutrition.

This document focuses on the environmental and policy strategies for one of those interventions—physical activity—which is important in managing all forms of arthritis, including osteoarthritis. Environmental strategies are physical, social, or economic factors designed to influence people's practices and behaviors, while policy strategies can be defined as laws, regulations, rules, protocols, and procedures designed to guide or influence behavior. Persons with arthritis have disease specific barriers to being physically active as well as high rates of comorbidities, with 47 percent of U.S. adults with arthritis having at least one comorbid condition.[16] Especially with diabetes[17] and heart disease,[18] having arthritis as a comorbidity may hinder efforts to be physically active, which is important for disease management.[19] This document focuses on increasing physical activity because of the many benefits physical activity has for adults with arthritis, the unique role environmental and policy strategies can have in addressing arthritis-specific barriers to physical activity, and the other long-established benefits physical activity has for co-occurring chronic conditions such as obesity, diabetes, and heart disease. The focus on environmental and policy strategies also is prompted by an increasing national prioritization of low cost, effective, and sustainable approaches to improve public health.

The AF convened experts (17 for an electronic review and 13 for an in-person meeting) to produce prioritized environmental and policy strategies to increase physical activity among adults with arthritis. The experts represented areas of expertise related to physical activity and arthritis, as well as various sectors that can influence physical activity levels. The experts reviewed a white paper summarizing relevant policies and scientific literature. Background information in the white paper included a literature review of barriers and facilitators to physical activity among adults with arthritis and a search of relevant organizational policies. The white paper is available electronically on the Arthritis Foundation website (**www.arthritis.org/physical-activity**).

Feedback from experts during the electronic review was used to develop draft strategies that were subsequently examined and prioritized by the second group of experts during the in-person meeting in Atlanta, GA in March, 2011 (see Appendix C). The strategies were prioritized based on the following criteria: most practical and doable, likely to have the greatest impact on adults with arthritis, able to be initiated within 1-2 years, and sustainable over time. During the in-person meeting, the experts discussed the strategies and the white paper and then each expert ranked their top priorities based on the criteria mentioned above. The strategies which received the most votes are included as priority strategies. Table 1 (page 13) shares the priority environmental and policy strategies that emerged from these deliberations (additional strategies considered important but of lesser priority are included in Appendix A). They are organized by and geared toward six audience specific sectors that are derived from the sectors found in the National Physical Activity Plan (**http://www.physicalactivityplan.org/theplan.php**, launched May, 2010), with minor adjustments. The planning group and experts chose these specific sectors because of the potential partnerships that could be formed to implement environmental and policy strategies to increase physical activity among adults with arthritis.

Sector-specific action briefs which highlight the priority strategies by sector are available. The sector-specific action briefs provide more detailed information on implementing the environmental and policy strategies, and include the rationale and deliberations for each strategy. These action briefs can be useful for sectors in furthering their specific goals, developing implementation plans, and building partnerships.

Pursuit of these environmental and policy strategies will expand the public health action framework for arthritis and have the potential to change physical and social environments to support physical activity among adults with arthritis, in much the same way that policy and environmental strategies have proven effective for other public health issues. They also might lead to sustained improvements in overall health status among adults with arthritis with other chronic conditions.

This document focuses on **increasing physical activity** because of the many benefits physical activity has for adults with arthritis, the unique role environmental and policy strategies can have in addressing arthritis-specific barriers to physical activity, and the other long-established benefits physical activity has for co-occurring chronic conditions such as obesity, diabetes, and heart disease.

Background

The Importance of Physical Activity

As stated previously, currently, 22.2 percent of the adult U.S. population has arthritis.[2] More than 42 percent of the U.S. adults with arthritis, or 21.1 million adults, have activity limitations attributable to their arthritis.[20] An estimated 33.8 percent of women and 25.2 percent of men who are obese report doctor-diagnosed arthritis[2] and nearly half (47 percent) of adults with arthritis have at least one other chronic condition, the most common of which is heart disease, chronic respiratory conditions, diabetes, or stroke.[16] Due to the aging of the U.S. population, these numbers are all expected to increase significantly in the coming years.[2, 21] This already has an impact among U.S. working-age adults and the Business and Industry sector, as approximately 8 million (or 31 percent) of all U.S. adults aged 18 to 64 with arthritis report having work limitations attributable to arthritis.[22]

Physical activity has many benefits for the general population but, in particular for the management of arthritis, it decreases pain, delays the onset of disability, improves physical functioning and independence, and enhances quality of life, aerobic capacity, and muscle strength.[4-15] Because arthritis can be a barrier to physical activity, learning to be physically active safely with arthritis is likely to contribute to reducing the incidence and progression of other chronic conditions[13,23] that commonly co-occur with arthritis. Specific recommendations for physical activity among adults, as well as special considerations for people with arthritis and other chronic conditions as specified in the U.S. Health and Human Services Physical Activity Guidelines, are presented below.

Recommended Physical Activity for Adults	Special Considerations for People with Chronic Conditions (including Osteoarthritis)
• 2 hours and 30 minutes a week of moderate-intensity, or 1 hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week. • Additional health benefits are provided by increasing to 5 hours (300 minutes) a week of moderate-intensity aerobic physical activity, or 2 hours and 30 minutes a week of vigorous-intensity physical activity, or an equivalent combination of both. • Muscle-strengthening activities that involve all major muscle groups performed on 2 or more days per week.	• 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.

Source: Physical activity guidelines for Americans, available at: http://www.health.gov/PAGuidelines/guidelines.

For specific research findings on physical activity for people with osteoarthritis, see: The Physical Activity Guidelines Advisory Committee Scientific Report available at: http://www.health.gov/PAGuidelines/Report/pdf/CommitteeReport.pdf

Recommendations for the management of arthritis—from clinical treatment guidelines to *A National Public Health Agenda for Osteoarthritis*—have included physical activity among the interventions proven effective for improving the lives of adults with arthritis.[2,24,25] Evidence-based physical activity programs for adults with arthritis are available, and can improve the quality of life for adults with arthritis.[26] The CDC Arthritis Program provides a list of recommended[27] and promising[28] evidence-based interventions that promote physical activity (see Appendix B). The CDC Arthritis Program also offers criteria for determining if other interventions may be deemed "arthritis-appropriate"[29] (see Appendix B).

Despite the documented benefits of physical activity, adults with arthritis have higher rates of physical inactivity than those without arthritis.[30, 31] Based on the 2009 National Health Interview Survey, 45 percent of adults with arthritis are considered inactive (defined as less than 10 minutes of aerobic physical activity per week) as compared to 36 percent of adults without arthritis.[32] Furthermore, the highest rates of physical inactivity are among adults with arthritis and heart disease, arthritis and diabetes, and arthritis and obesity, when compared to adults with none of these conditions.[18, 33, 34]

These physical activity gaps are due to both arthritis-specific barriers that limit physical activity among adults with arthritis as well as barriers that are found among the general population and the physical and social environment. Below is a list of common barriers to physical activity for adults with arthritis (some of the barriers listed are arthritis specific, while others are barriers that anyone would experience):[35-37]

Physical barriers such as pain and fatigue; lack of mobility; or comorbid conditions.

Psychological barriers such as lack of time, motivation, and enjoyment of exercise; fear of experiencing or worsening pain; or perceived negative outcomes that might result from pushing beyond one's limits.

Social barriers such as lack of support from family, friends, and licensed health care professionals; no exercise partner; or competing responsibilities of job and family.

Environmental barriers such as costly fees; no transportation; or lack of safe and accessible exercise facilities, parks, recreation centers, sidewalks, or other public spaces.

Few strategies exist that address these barriers and promote physical activity in a way that is safe, accessible and effective for, and inclusive of, adults with arthritis. Proposed are environmental and policy strategies to address these barriers and increase the likelihood that regular physical activity will become institutionalized and sustainable.†

† Source: **http://www.cdc.gov/healthycommunitiesprogram/tools/change/pdf/changeactionguide.pdf** (Policy strategies are laws, regulations, rules, protocols, and procedures designed to guide or influence behavior. Environmental strategies are physical, social, or economic factors designed to influence people's practices and behaviors.)

Influential Sectors

Six sectors play particularly crucial roles in reaching, influencing, and sustaining physical activity among adults with arthritis. Definitions of these sectors are adapted from the *National Physical Activity Plan* (http://www.physicalactivityplan.org/theplan.php), which was launched in May, 2010. The *National Physical Activity Plan* for the United States was developed by a coordinating committee consisting of national physical activity and public health organizations, in collaboration with eight sector working groups consisting of government, non-government, private industry, and non-profit organizations.‡ The sectors addressed in this document are:

Community and Public Health: National, state and local public health agencies; aging services; schools of public health; volunteer and non-profit organizations that work with communities and constituencies on arthritis and other issues of aging; faith-based institutions; and governmental and non-governmental organizations who could promote physical activity among their constituencies in a way that is safe and effective.

Health Care: Licensed health care professionals working with or serving adults in a variety of settings as providers; public and private insurers; and health care administrators and managers.

Transportation, Land Use, and Community Design: National, state, and local organizations, agencies, boards and governing bodies that address transportation, development patterns, built environment, public spaces, public works, and community design and planning issues.

Business and Industry: Public and private employers, large and small, as well as worksite wellness programs, including those that provide access to fitness facilities and activities.

Park, Recreation, Fitness and Sport: Public and private organizations invested in promoting, supporting, and providing recreation and fitness opportunities for children and adults.

Mass Media and Communication: Organizations that develop health communications or engage in public and private marketing of messages on the importance of physical activity for adults and available evidence-based interventions.

The National Physical Activity Plan provides strategies and tactics for increasing physical activity among the U.S. population. This arthritis-specific document provides an independent listing of environmental and policy strategies that can be put in place to meet the goals of the National Physical Activity Plan for adults with arthritis. These strategies reflect ways the sectors can work towards increasing physical activity among adults with arthritis to further their sector specific objectives.

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‡ Source: http://www.physicalactivityplan.org/history/index.php

Environmental and Policy Strategies to Improve Physical Activity Among Adults With Arthritis

A variety of environmental and policy strategies were considered and prioritized by experts, based on their informed opinions and background information provided in the white paper (which can be found at **www.arthritis.org/physical-activity**). Table 1 highlights the list of top priority environmental and policy strategies that, based on the opinion of the expert meeting participants, are the most practical and doable, likely to have the greatest impact on adults with arthritis, able to be initiated within 1-2 years, and sustainable over time. Following the table are more detailed versions of these strategies. For the list of additional environmental and policy strategies considered, see Appendix A.

It is important to note that the priority strategies are arthritis specific and intended to supplement more comprehensive strategies implemented in compliance with the Americans with Disabilities Act (ADA), the *National Physical Activity Plan*, the *2008 Physical Activity Guidelines for Americans*, and other general physical activity recommendations and applicable laws. To maximize their impact, many of the strategies in this document need to be translated into organizational or public policies. In general, where resources are limited, investments are best utilized if focused on communities with the highest prevalence of arthritis. These strategies are designed to be implemented by organizations and individuals who work in and influence the six sectors described in this initiative.

Table 1. Priority Environmental and Policy Strategies for Improving Physical Activity Among Adults With Arthritis

Community and Public Health	Public health, aging services networks, faith-based organizations, and other community agencies should invest resources in the dissemination and delivery of evidence-based physical activity programs for adults with arthritis in convenient settings.
Health Care	Health care systems should require licensed health care professionals to ask arthritis patients about physical activity levels at every visit, screen for arthritis-specific barriers to physical activity, encourage physical activity, and recommend evidence-based community interventions or rehabilitation therapies when appropriate.
Transportation, Land Use, and Community Design	Policies should be put in place and reinforced to create or expand efforts to promote active living environments that can support adults with arthritis being physically active.
Business and Industry	Comprehensive worksite wellness programs should be inclusive and explicitly incorporate the needs of adults with arthritis in their programs without requiring disclosure of arthritis diagnosis.
Park, Recreation, Fitness, and Sport	Park, recreation, fitness, and sport professionals should receive training on how to adapt and modify physical activity programs and exercises for adults with arthritis and assist them in initiating and sustaining appropriate physical activity.
Mass Media and Communication	Available evidence-based physical activity interventions for adults with arthritis should be promoted through information, guidelines, signage, media promotion, and public outreach.

Below is the list of priority strategies with expanded descriptions. The sub-bullets below each priority strategy are included for explanation and to provide examples of potential action steps, and were considered by the experts during the ranking process. The strategies were written for the sectors described above, and are designed to be implemented by those with the potential to reach adults with arthritis.

Community and Public Health

"Historically, the primary role of public health is to monitor, protect, and promote the public's health. These functions complement the health care delivery system and community sectors. Complementing the public health sector are volunteer and non-profit organizations, long recognized as a source of social cohesion, a laboratory of innovation, and a continually adaptable means of responding to emerging ideas, needs, and communal opportunities. These community organizations have been in the forefront of developing and promoting physical activity recommendations and programs."[§]

Public health, aging services networks, faith-based organizations, and other community agencies should invest resources in the dissemination and delivery of evidence-based physical activity programs for adults with arthritis in convenient settings.

- Offer in all aging services agencies at least one evidence-based physical activity intervention that is recommended[27] or promising[28] for adult with arthritis OR, in the absence of such an intervention, one that meets the CDC Arthritis Program arthritis-appropriate[29] criteria (*see Appendix B*).
- Incorporate strategies to reduce arthritis-specific barriers in all programmatic and policy initiatives to increase physical activity (that have the potential to reach adults with arthritis), such as including arthritis-specific strategies in public health documents that address increasing physical activity in adults with obesity, disabilities, heart disease, and diabetes.
- Encourage public health and aging services organizations to use federal funding (e.g., Title 3D, Older Americans Act Title III D, Medicaid waivers, and other discretionary funding sources) to support evidence-based physical activity interventions for adults with arthritis.

§ Source: The National Physical Activity Plan (http://www.physicalactivityplan.org/theplan.php)

- Expand physical activity opportunities in senior centers, the Y, churches and synagogues, and other appropriate community facilities, including utilization of lay leaders, non-traditional activities such as motion controlled video games, and evidence-based interventions for adults with arthritis (*see Appendix B*).

- Create joint-use agreements for schools, shopping malls, and other community buildings to host physical activity opportunities for adults in the community. (e.g., by offering open hours when not in use for other purposes). Adults with arthritis can take advantage of these agreements.

- Promote sustained funding for community-based programs that offer physical activity for adults with arthritis.

(See Appendix A for additional strategies)

Health Care

*"The health care sector is our nation's largest industry. It is comprised of all the people and physical resources devoted to providing health-related services to individuals. Traditionally, health care has focused on diagnosing and treating illness and injury. However, as knowledge of the causes of premature disability and death has advanced, the health care sector has increasingly emphasized early intervention and prevention. In their work with individual patients, health care providers have a unique opportunity to encourage adults, children, and families to increase their daily physical activity."***

Health care systems should require licensed health care professionals to ask arthritis patients about physical activity levels at every visit, screen for arthritis-specific barriers to physical activity, encourage physical activity, and recommend evidence-based community interventions or rehabilitation therapies when appropriate.

- Incorporate an assessment of physical activity levels into every visit of a patient with arthritis to a licensed health care professional, along with screening for arthritis-specific barriers to physical activity (e.g., pain, physical limitations, and fear of worsening symptoms). Such assessments should make

**Source: The National Physical Activity Plan (http://www.physicalactivityplan.org/theplan.php)

physical activity a critical "vital sign,"[38] much like blood pressure and pulse. Also, licensed health care professionals should take advantage of the annual wellness visits now covered by Medicare under the Affordable Care Act to address physical activity. (See "Key Research Areas" in Table 2 for strategies on additional research needed on tools to aid in implementation.)

- Enable licensed health care professionals to recommend that their patients with arthritis participate in community-based physical activity interventions and/or other physical activities appropriate for adults with arthritis (or rehabilitation therapies as needed), for example by the use of electronic reminders.
- Enhance clinic systems to facilitate smooth and easy recommendations to community-based physical activity interventions or other physical activities appropriate for adults with arthritis (or rehabilitation therapies as needed).
- Empower patients with arthritis with the skills to perform their own self-assessment, develop a personalized plan for physical activity, and engage in recommended physical activity.

(See Appendix A for additional strategies)

Transportation, Land Use, and Community Design

"Transportation systems, development patterns, and community design and planning decisions all can have profound effects on physical activity. People can lead healthier, more active lives if our communities are built to facilitate safe walking and biking and the use of public transportation, all considered forms of active transportation." ††

Policies should be put in place and reinforced to create or expand efforts to promote active living environments that can support adults with arthritis being physically active.

- Urge state and local governments to examine planning and zoning efforts, such as complete streets policies, to ensure that adults with arthritis can walk safely to their schools, workplaces, shopping areas, and other community venues (e.g., pedestrian crossing signals that allow adequate time for adults with arthritis and other mobility limitations to cross the road safely).

†† Source: The National Physical Activity Plan (http://www.physicalactivityplan.org/theplan.php)

- Encourage planners to utilize incentives offered by federal programs to states that incorporate active living principles into planning and zoning standards.

(See Appendix A for additional strategies)

Business and Industry

"Because of their close ties to employees, business and industry can encourage positive physical activity behavior change in a supportive context of workplace policies and culture. By leveraging community resources and using health benefits incentives, business and industry also have an opportunity to reach families and the broader community."‡‡

Comprehensive worksite wellness programs should be inclusive and explicitly incorporate the needs of adults with arthritis in their programs without requiring disclosure of arthritis diagnosis.

- All worksite wellness programs (with the potential to reach adults with arthritis) that have scheduled exercise programs should have at least one evidence-based physical activity intervention that is recommended[27] or promising[28] for adults with arthritis OR, in the absence of such an intervention, one that meets the CDC Arthritis Program arthritis-appropriate[29] criteria (*see Appendix B*).

- Provide physical activities in all worksite wellness programs (with the potential to reach adults with arthritis) that are inclusive of adults with arthritis but that are not branded specifically for arthritis (*see Appendix B*).

- Support broad based workplace incentives to encourage public and private employers to adopt physical activity as a good business strategy, for example if a certain percentage of employees participate in worksite wellness sponsored physical activity, insurers could reduce employer premiums for health insurance.

(See Appendix A for additional strategies)

‡‡ Source: The National Physical Activity Plan (http://www.physicalactivityplan.org/theplan.php)

Park, Recreation, Fitness, and Sport

"Providing access, education, and resources that help people incorporate fun and meaningful physical activity into their daily lives can foster real change in the national level of physical activity."[§§]

Park, recreation, fitness, and sport professionals should receive training on how to adapt and modify physical activity programs and exercises for adults with arthritis and assist them in initiating and sustaining appropriate physical activity.

- Urge appropriate park, recreation, fitness, and sport professionals to complete an exercise and arthritis professional development program or training (such as The Fitness Professional's Guide to Training Clients with Osteoarthritis provided by the American Council on Exercise, trainings for Arthritis Foundation exercise courses, or trainings for EnhanceFitness®).
- Include arthritis-specific information in all exercise certification programs (such as American Council on Exercise and American College of Sports Medicine certifications) and undergraduate exercise professional training curricula.
- Develop training opportunities for park, recreation, fitness and sport practitioners to get continuing education credits related to physical activity programming for adults with arthritis.
- Provide more sources of appropriate arthritis-friendly physical activity training for fitness professionals, peer leaders, etc.
- Increase training on evidence-based physical activity programs for physical activity and exercise lay peer and group co-leaders.

(See Appendix A for additional strategies)

§§ Source: The National Physical Activity Plan (http://www.physicalactivityplan.org/theplan.php)

Mass Media and Communication

*"Mass media, both traditional media, like TV and magazines, and 'new' media, like Web sites, social networking sites, and text messaging, have enormous potential and power to influence individual behaviors and societal attitudes."****

Available evidence-based physical activity interventions for adults with arthritis should be promoted through information, guidelines, signage, media promotion, and public outreach.

- Institute systems and organizational structures for improving and expanding communication to increase physical activity among adults with arthritis, including employing electronic technology, social marketing strategies, and social media where appropriate.
- Base health communication messages promoting physical activity on arthritis-specific consumer research findings and connect audiences with available physical activity interventions.

(See Appendix A for additional strategies)

*** Source: The National Physical Activity Plan (http://www.physicalactivityplan.org/theplan.php)

Looking Ahead

Moving forward requires focused and dedicated effort on the part of each sector, while at the same time calling for substantial coordination and collaboration among them. Some of the common challenges that lie ahead include:

- Ensuring increased availability, accessibility, and safety of physical activity options for adults with arthritis in a wide variety of venues.
- Designing and adapting systems and structures to incorporate evidence-based findings into routine practice.
- Identifying data needs and using existing surveillance data and other information to guide decision making and focus use of limited resources. Tracking progress by developing long- and short-term outcomes for chosen initiatives and identifying metrics and indicators by which to monitor their accomplishment. Engaging universities and educational institutions to design and deliver training and educational initiatives for both professionals and consumers.
- Enhancing the knowledge base about how to most effectively promote and support the priority environmental and policy strategies for increasing physical activity among adults with arthritis. Conducting research to fill gaps in scientific knowledge (see Table 2, which contains suggested strategies for the scientific and research community).

The following table (Table 2) lists areas that could benefit from additional research and development.

Table 2. Key Research Areas

Create a tool for licensed health care professionals to use (as a routine component of "vital signs") during visits when screening their adult patients with arthritis for arthritis-specific barriers to physical activity.
Develop a self-assessment tool for adults with arthritis to measure their functional ability and use that measurement to tailor physical activities accordingly.
Design and evaluate a walk-ability audit or checklist that is specifically relevant for adults with arthritis and other physical limitations.
Evaluate physical activity policies, practices, and tools (e.g., checklists, audits, and equipment) recommended for adults with arthritis to assess their effectiveness and disseminate findings widely to enhance knowledge and translation into practice.
Better understand how to foster physical activity among adults who have arthritis along with other chronic conditions.
Evaluate the impact of policy and environmental strategies on physical activity behaviors among adults with arthritis.

Final Thoughts

The environmental and policy strategies presented in this document are ambitious but doable. By working together, these strategies can be implemented by organizations and individuals who work in or influence the sectors. Broad-based collaboration has the potential to make a significant impact on improving the quality of life for the millions of Americans with arthritis and their families.

For more information on this initiative or to collaborate on the implementation guide, please contact the Arthritis Foundation (202-887-2911).

For the list of additional environmental and policy strategies, see Appendix A

Appendix A: Additional Environmental and Policy Strategies

Community and Public Health

Tools and systems should be developed to increase access to physical activity interventions in the community.

- Maintain an up-to-date electronic database or listing of current physical activity and arthritis-friendly community resources and make it readily available on the internet.
- Develop persuasive messages to increase awareness about the role and availability of arthritis-specific physical activity available through public health, aging, and other governmental agencies.

Health Care

Health care administrators and managers should support development of tools to facilitate inclusion of physical activity screening and behavioral support strategies for adults with arthritis into clinical practice.

- Design electronic systems to record physical activity levels of patients with arthritis and receipt of physical activity information and recommendations, and provide a means to monitor relevant practices of health care professionals related to patient screening and follow-up (e.g., chronic disease management electronic registries).
- Record physical activity as a vital sign in patients' medical records (electronic and/or paper) at every visit.
- Include decision prompts in electronic medical records systems to assess and encourage physical activity.
- Develop continuing education opportunities for licensed health care professionals that address physical activity assessment and behavior change strategies specific to arthritis and physical activity.

Insurance payers should include financial and other types of incentives to support physical activity among adults with arthritis.

- Ensure that all public, private, and employer-based insurance plans provide reimbursement for licensed health care professionals who screen patients with arthritis for physical activity levels. This includes adding such screening to the annual wellness visits now covered by Medicare under the Affordable Care Act.

- Support financial or other incentives in all insurance plans for adults with arthritis who complete participation in recommended interventions that promote physical activity (Appendix B) (e.g., small percentage reduction in premiums or rebate).
- Provide reimbursement or other forms of incentives in all public and private insurance plans to promote enrollees' access to and use of community fitness facilities.

Transportation, Land Use, and Community Design

Assess the outdoor environment and public spaces and make improvements so that they are accessible and conducive to physical activity by adults with arthritis.

- Increase availability of appropriate public transportation options for adults with arthritis, similar to those available to adults with physical limitations or disabilities, which will allow them to remain engaged in valued life and community activities.
- Install, upgrade, and maintain sidewalks and benches in new and existing neighborhoods to create safe functional pathways and resting areas in and around parks, recreation centers, and other community venues for physical activity among adults with arthritis.
- Use tools such as audits or walk-ability checklists to design and maintain safe and accessible community options for physical activity (e.g., walking trails, loops, paths, green space, benches, fountains, shade). One example is the Pedestrian and Bicycle Information Center Walk-ability Checklist[39] but a variety of other tools are available.
- Encourage state and local planning and transportation boards and authorities, as well as elected officials, to consult with arthritis, aging, and physical activity experts when creating built environments and designing signage, benches, rest areas, bus shelters, etc.
- Include point-of-decision prompts, signage, and other deliberate design features in grocery stores, shopping areas, and other public places to encourage walking and other physical activity among adults with arthritis and notify them of relevant changes in conditions, construction, detours, etc. that might impact safety.

Business and Industry

Public and private business and industry, both large and small, should adopt policies that support physical activity as an important component of wellness for all employees.

- Set worksite wellness goals that specifically address physical activity for adults with physical limitations such as arthritis, in addition to other healthy behaviors such as smoking cessation and weight/nutrition.
- Offer opportunities and scheduling flexibility to enable all employees to engage in self-directed physical activity during the workday (activity can be broken up into small amounts, at least 10 minutes at a time, during the day).
- Use tools such as audits or walk-ability checklists to assess whether worksite walking trails or paths are accessible to persons with arthritis. One example is the Pedestrian and Bicycle Information Center Walk-ability Checklist[39] but a variety of other tools are available.

Worksite wellness fitness professionals should receive training on how to adapt and modify physical activity programs and exercises for adults with arthritis and assist them in initiating and sustaining appropriate physical activity.

- Urge fitness professionals employed by comprehensive worksite wellness programs to complete an exercise and arthritis professional development program or training, such as The Fitness Professional's Guide to Training Clients with Osteoarthritis provided by the American Council on Exercise, trainings for Arthritis Foundation exercise courses, or trainings for EnhanceFitness®.
- Require certification of health promotion professionals who implement worksite physical activity programs by a reputable fitness-certifying agency (such as the American Council on Exercise, American College of Sports Medicine, the Y, etc.).

Worksite wellness facilities that maintain green spaces should ensure safe access and utilization of the spaces for adults with arthritis.

- Use tools such as audits or walk-ability checklists to assess whether worksite walking trails or paths are accessible to persons with arthritis. One example is the Pedestrian and Bicycle Information Center Walk-ability Checklist[39] but a variety of other tools are available.

Park, Recreation, Fitness, and Sport

Park, recreation, fitness, and sports facilities should explicitly incorporate the needs of adults with arthritis in their programs.

- Offer at all park, recreation, fitness, and sport facilities with scheduled exercise programs at least one evidence-based physical activity intervention that is recommended[27] or promising[28] OR, in the absence of such an intervention, one that meets the CDC Arthritis Program arthritis-appropriate[29] criteria (*see Appendix B*).
- Provide literature and materials on arthritis and physical activity, such as the Arthritis Foundation's exercise and arthritis materials, in all park, recreation, fitness, and sport facilities.
- Encourage park, recreation, fitness, and sport facility authorities to offer more low-impact and low-intensity exercise equipment for individuals with disabilities and older adults (e.g., bicycles, elliptical, swimming pools, exercise bands).

Park, recreation, and other community-based facilities should ensure safe access and utilization of parks, and green spaces for adults with arthritis.

- Provide sidewalks in new and existing areas, along with benches or areas for resting, to create safe pathways for adults with arthritis to access parks and recreation facilities.
- Use tools such as audits or walk-ability checklists to assess whether walking trails or paths are accessible to persons with arthritis. One example is the Pedestrian and Bicycle Information Center Walk-ability Checklist[39] but a variety of other tools are available.

Appendix B: Physical Activity Interventions for Adults with Arthritis

A variety of packaged interventions that promote physical activity are available, effective and recommended for adults with arthritis because they have met specific screening criteria developed by CDC's Arthritis Program. There are twelve Recommended Programs by the CDC Arthritis Program—evidence-based programs proven to improve the symptoms, function, and quality of life of adults with arthritis (included on this list are five recommended Group Exercise Programs; two Health Communication Campaigns, which promote physical activity; and four Self-Management Education Programs, which contain components to promote physical activity).

Recommended Programs[27]

Group Exercise Programs	
Active Living Everyday (ALED)	www.activeliving.info/
Arthritis Foundation Aquatic Program (AFAP)	www.arthritis.org/aquatics.php
Arthritis Foundation Exercise Program (AFEP)	www.arthritis.org/exercise.php
Arthritis Foundation Walk With Ease (WWE)	www.arthritis.org/walk-with-ease.php
EnhanceFitness (EF)	www.projectenhance.org/EnhanceFitness.aspx
Fit and Strong!	www.fitandstrong.org/
Health Communication Campaigns	
Physical Activity: The Arthritis Pain Reliever	www.cdc.gov/arthritis/interventions/physical/overview.htm
Buenos Días, Artritis	www.cdc.gov/arthritis/interventions/buenos/overview.htm
Self-Management Education Programs	
Arthritis Self-Management Program (ASMP)	patienteducation.stanford.edu/programs/asmp.html
Chronic Disease Self-Management Program (CDSMP)	patienteducation.stanford.edu/programs/cdsmp.html
Programa de Manejo Personal de la Artritis (*Spanish Arthritis Self-Management Program – SASMP*)	patienteducation.stanford.edu/programs_spanish/asmpesp.html
Tomando Control de su Salud (*Spanish Chronic Disease Self-Management Program*)	patienteducation.stanford.edu/programs_spanish/tomando.html

Another three interventions are Promising Programs by the CDC Arthritis Program—interventions with promising preliminary data for which infrastructure is currently being developed to support widespread dissemination.[28]

Promising Programs[28]

The Arthritis Toolkit	www.bullpub.com/catalog/the-arthritis-toolkit
Better Choices, Better Health for Arthritis	www.arthritis.org/betterhealth
Walk With Ease (Self-directed)	www.arthritis.org/walk-with-ease.php

In communities where the recommended programs and promising programs are not available, other interventions may be considered if they are deemed "arthritis appropriate" by meeting the CDC's Arthritis Program specific screening criteria.[29] These criteria address the characteristics of the intervention design, physical activity, and research:

Characteristics of Intervention Design

- Participant control over activity intensity, frequency, and duration
- Instructor training reinforces participant control
- Instruction is hands off (no touch)
- Provides background information on fitness
- Flexibility in measures of success (so participant feels competent and successful)

Characteristics of the Physical Activity

- No contact/collision sports
- No competitive sports
- No jumping or high joint impact activity

Characteristics of the Research

- Data available on a general adult community population (no military, elite athlete, or child-based populations)
- Dropout rates and reasons reported
- No safety/injury concerns raised

Two additional domains must be met for an intervention to be considered by CDC's Arthritis Program as promising or recommended: Adequacy of the Evidence Base (intervention evaluated in present form, measured arthritis relevant outcomes of interest, documentation of evidence, consistency of evidence, and studies documenting evidence are judged to have reasonable rigor) and Implementability as a Public Health Intervention (Leader/Implementer requirements, site requirements, equipment requirements, cost to participants less than $50, Implementation Guide available, and supporting structures (i.e., training, technical assistance) judged to be adequate to support wide-spread implementation).[40]

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Notes


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