

# The great outdoors: a key to promoting physical activity for older adults



*For Medford Leas residents, the communities' stimulating outdoor spaces support a healthy, active lifestyle. Image courtesy of Medford Leas*

## **It's easier—and less costly—than you might think to enhance your outdoor environment for healthy, active aging**

*by Marilyn Larkin, MA*

A recent study supports what many active-aging professionals know from experience: Frequent forays outdoors can help older adults maintain functional ability. Researchers found that individuals who left the house every day at age 70 experienced “significantly fewer new complaints” of sleep problems, musculoskeletal pain, urinary incontinence and troubles with activities of daily living when they reached age 77.<sup>1</sup>

Yet, despite the known benefits of outdoor physical activity, “many neighborhoods and communities remain poorly designed or unsafe,” according to the 2001 *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older*.<sup>2</sup> “Some neighborhoods have no sidewalks,” reports the *Blueprint*; “other

areas are in the midst of busy thoroughfares, making it dangerous even to cross the street to a nearby store.” These barriers, along with others related to environment, discourage older adults from something as simple as walking regularly. Not surprisingly, poor street conditions, hills and noisy traffic were among the factors cited as inducing fear of moving outdoors among community-dwelling adults in a recent study.<sup>3</sup>

Similar hindrances to outdoor activity may be found across the continuum of older-adult communities, from independent living to continuing care retirement communities (CCRCs), observes Susan Rodiek, PhD, NCARB, the Ronald L. Skaggs Endowed Professor in Health Facilities Design, in the College of Architecture at Texas A&M University. Rodiek’s research, funded by the National Institute on Aging, evaluated how well the environment supported residents’ needs in 68 assisted living communities. Preliminary findings showed that the main outcome variables—satisfaction, outdoor usage, walking and family visitation—correlated significantly

with the following elements, as reported by residents and staff:

- easy to reach the outdoor areas
- comfortable to spend time in outdoor areas
- enough different places to sit
- enough greenery outdoors
- very well designed walkways

But all too often, instead of incorporating these elements, the environment is ignored or not used to its full potential in senior living, says Jack Carman, FASLA, president of Design for Generations, LLC, in Medford, New Jersey. “The outdoors is looked at as an amenity, as opposed to an essential part of the community, which is what it should be,” he explains. “It’s as important as a dining room, kitchen or any other interior room of a residence where people participate in activities.”

### Five inviting features

Existing communities (and other active-aging settings) can take more advantage of the outdoor environment without incurring huge expenses, according to Carman. Here are five outdoor features that are relatively easy to implement, and promote various degrees of physical activity.

**Outdoor kitchen/barbecue.** “Expand the dining experience to include an outdoor kitchen or barbecue,” Carman suggests. “Plan a themed meal once a week and invite residents to eat outside.” To accomplish this safely, an organization would need a large enough outdoor area to accommodate these older adults, and a patio with a smooth surface that facilitates access. Tables should be placed under an awning or include umbrellas to provide shade. “Heaters can extend outdoor dining later in the season,” he says. And “in low-humidity regions such as Arizona, misters can be used to make the outdoor experience more inviting.” Individuals should be encouraged to walk

to the outdoor dining area, while an after-meal walk boosts the physical-activity component of the event.

**Community garden.** “Community gardens are ‘hot’ right now—even the White House has one,” Carman observes. Maintaining a garden can be physically demanding. One recent study found that healthy older gardeners can meet the physical activity recommendation [at least 30 minutes of moderate-intensity physical activity on most days of the week] from daily gardening, and that gardening may be a factor leading to good physical and mental health.<sup>4</sup> Another study showed that gardening strengthens hands and that the most active gardeners reported significantly better physical health than gardeners who were less physically active and nongardeners.<sup>5</sup>

The main obstacle to creating a garden is actually getting started, Carman says, so organizations should do their best to remove deterrents. “Include raised planters of varying heights, so that all individuals, including those in wheelchairs, can get their hands in the dirt,” Carman recommends. Fence in the garden area to keep wildlife out; have staff till the soil in the spring to get it ready. “One community I worked with has a garden just for staff, and they get to bring produce home,” he comments. “Another facility donates produce to the community at large, reinforcing connections between the facility and local residents.”

**Birdwatching.** “Birdwatching is America’s second most popular hobby after gardening, and the presence of birds often draws out those who might otherwise sit around indoors,” Carman says. “People worry about attracting pigeons or other birds that can make a mess, so some communities outlaw feeders entirely. Then residents go out and throw food scraps, which attracts mice.” But such

bans aren’t necessary, he stresses. Hummingbird feeders will specifically attract hummingbirds; thistle feeders have small openings so the only bird that can access the feeder is the house finch or gold finch. Similarly, certain plants will attract the kinds of birds that can add sound, color and movement to the environment—and prompt older adults to venture out to look for them.

**Fountain.** “Fountains are the number one element people ask for in a garden,” Carman notes. “You don’t have to put in a big, rushing stream or ponds to achieve that. Often, a small tabletop water fountain or combination birdbath and fountain are enough to make the outdoor area more inviting.”

**Walking trails.** “Although walking trails are a common feature in many communities, often they’re not thought of for use throughout four seasons,” Carman observes. “The trail should be just as interesting in the winter as in the warmer months, so that residents are encouraged to continue walking them. For example, the barks of trees such as River Birch, Winterberry Holly or Witch Hazel, and ornamental grasses that maintain their foliage year-round can help lure residents outdoors.”

Once you have some features in place, start marketing them, Carman advises. “It’s exciting to see people *doing* something in a facility, not just sitting by a door.” A 2002 AARP survey supports this view. The survey reported that 98% of 50-plus adults are aware that getting enough exercise is important. This level of awareness means that marketers do not have to establish need, but rather show how they are providing a solution that will overcome the barriers.<sup>6</sup>

### Practical considerations

Susan Rodiek reminds that *unintentional* barriers often thwart a community’s best

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efforts to encourage older adults to participate in outdoor activities. These obstacles, both in the design of the building and of the outdoor space, “are not difficult to deal with, but you have to be aware of them,” she says. Rodiek, who has studied the variables that encourage and discourage outdoor activities and has been developing a set of educational DVDs that address these considerations, points to the most common mistakes:

**Doors.** “If you have an existing outdoor space, make sure none of the doors that lead to it are routinely locked by maintenance people,” states Rodiek. It’s not uncommon for maintenance staff to unlock one door leading to the outside of a room or building and leave the other one locked, particularly when there are two doors right next to each other. “Many older adults won’t try the other door to see if it’s open. They’ll just stay indoors,” she explains.

The same is true when doors are hard to open. The force required to open a door should not exceed the maximum force permitted by the Americans with Disabilities Act. “But time and again, we found that the doors in facilities for older adults were very difficult to open,” Rodiek says. “If you’re standing with one hand on a walker or sitting in a wheelchair, the force required to open the door could make a difference between going out or not.” Most doors have an opening/closing device on top that can be adjusted by a skilled maintenance person, she advises.

If you’re in the process of designing a facility, “be sure to locate the door to the outside in a place that is easy to spot from the common area,” Rodiek stresses. “Sometimes, it’s halfway down a hall, and people walk right past it.”

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## Snapshot: Adult Wellness Center, Rogers, Arkansas



*The Adult Wellness Center built its Wellness Garden in stages, allowing the Rogers, Arkansas, organization to incorporate many desirable features. Image courtesy of Don Farmer*

The Adult Wellness Center (AWC), in Rogers, Arkansas, won the 2008 NuStep Pinnacle Award and a 2007 EPA Building Healthy Communities for Active Aging Award. Last summer, the AWC completed construction of a handicapped-accessible Wellness Garden that features a rubberized walking trail, as well as balance, strengthening, stretching and exercise stations. Also included are a meditation garden with a labyrinth, a rock and water garden featuring fish and water plants, a demonstration garden with raised handicapped-accessible planter beds, a “4 Seasons Garden” designed and maintained by volunteers, a bird and butterfly sanctuary, a gazebo, a picnic area, and a recreational lawn panel. Trails extending from the garden lead to seniors housing and retail shops, and eventually will connect into the city’s master trail system, making walking a viable option to and from the AWC.

The biggest surprise was how long it took to complete the garden, according to AWC Director Keri York Wilkinson. “The building opened three years ago, and we immediately started plans for the garden because the area behind us had no trees or landscaping. We have many windows in the building, so when-

ever we looked out, we would just see barren land.”

After asking members what they wanted and meeting with architects, AWC management found that the cost of building the garden was more than double what they anticipated. So, they decided to move in phases, focusing first on what was most important to members. That turned out to be the rubberized outside walking trail, which would alleviate crowding on the indoor trail while permitting members to walk on a safe, non-jarring surface. The water feature was next on the list, and the AWC was able to add that while at the same time gathering donations and grants that would enable them to move ahead.

Interestingly, now that the garden has been completed, the AWC has “had a bit of a struggle to break the members’ habit of exercising indoors and get them to go outdoors,” Wilkinson says. To make the outdoors more accessible, the center is conducting orientations on the LifeTrail and holding special events, like the outdoor Easter egg hunt. While it will take time to maximize participation, it’s clear that the garden is part of what draws more than 1,000 members a day to the AWC.

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*At the Adult Wellness Center in Rogers, Arkansas, the Wellness Garden includes a rubberized walking trail with exercise stations. Image courtesy of Don Farmer*

**Thresholds.** The door threshold—the part of the doorway you step across—is arguably the worst, and most common, obstacle in older-adult communities, according to Rodiek. “I bought a standard walker with two tennis balls on the back and challenged my graduate students to try going in and out of one of these doors. They’d walk confidently to the door and stop,” she recalls. “They were stunned to find they couldn’t get over the barrier. It takes strength to lift a walker even over a fairly well designed threshold.” Some facilities are ripping up thresholds that act as barriers and installing ones that are smooth and easy to navigate instead.

**Walking surfaces.** “A very common problem is pavement that is too rough, or has deep cracks, or may have shifted so one side is higher than the other,” Rodiek says. These flaws discourage walking or wheelchair navigation, and may compromise safety. Also, sometimes the front or rear end of a parked car hangs over the sidewalk, blocking access.

Pathways should be connected, so that they form round-trips rather than coming to a dead end on two sides (i.e., a horseshoe shape)—particularly if one of those dead ends is a locked gate, Rodiek advises. Round-trips facilitate and

encourage walking, and provide a sense of accomplishment (e.g., “I walked three times around the building today”).

**Shade.** To reduce glare, walkway surfaces should be tinted. Shaded areas should also be provided along the way.

**Seating.** Organizations should consider replacing flat, concrete seating areas along walkways with mesh chairs with arms. The chairs should be lightweight enough to move around—but designed so they won’t tip over when residents use the arms to get up and down.

“A key outcome of one of our studies is that facilities can save money if people stay healthier,” Rodiek reveals. That said, “Imagine if you tried to go out, the doors were accidentally locked, or it’s too hot and sunny, or the benches are splintery. Is your health going to improve the way it would if you could have a beautiful walk even five minutes a day?”

## **Personal preferences**

Although it’s tempting to assume that the greener the physical environment is, the more likely people are to engage in outdoor physical activity, at least one large study found that this is not necessarily the case.

Researchers interviewed close to 5,000 people in the Netherlands about their physical activity and health, and calculated the amount of green space (urban green space, agricultural green space, forests and nature conservation areas) within a one-kilometer (0.6 mile) and a three-kilometer (1.8 mile) radius of each person’s zip code. They found no relationship between proximity to green space and participation in walking or cycling. However, those with more green space did garden for more minutes per week than those with less green space.

“People’s perception of their green space may motivate their behavior more than the availability of green space itself,” the lead study author speculated. “What is clear is that the amount people exercise is not related to the amount of green space they live near.”<sup>7</sup>

In fact, Wojtek Chodzko-Zajko, PhD, professor and head of the Department of Kinesiology and Community Health at the University of Illinois at Urbana–Champaign, is leading a study that aims to “get a sense of how people react to the outdoor space surrounding them and whether they believe it is a facilitator or barrier to personally meaningful physical activity choices.” The study, which concludes at the end of the summer, compares three retirement communities in different settings:

- a village with an enriched outdoor environment
- an isolated nonurban setting (in the middle of a large expanse of playing fields but not an enriched environment)
- an urban setting that has no gardens, but is close to shops, theaters and other cultural destinations

“We’re not trying to compare the settings,” explains Chodzko-Zajko, a mem-

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ber of the International Council on Active Aging® (ICAA) Advisory Board. “We’re looking at the reaction of the residents to the environments in which they live, and trying to understand how the environment influences their physical activity choices and preferences.”

Chodzko-Zajko and his colleagues anticipate finding that, for example, “people who choose to live in an urban location with no gardens at all might, in many ways, be quite different people from individuals who choose to live on a beautiful campus.” For urbanites, “factors other than green space and parks might induce them to go outdoors—for example, the presence of nearby theaters, libraries and shops. The critical factor is staying active,” he adds, “not necessarily where that activity occurs.”

“There’s no such animal as ‘the older person,’” Chodzko-Zajko emphasizes. His team purposely chose to look at CCRCs where “people are on a whole range of different aging and health trajectories, and we’re asking them to relate specifically what is meaningful to them,” he says. “We’re imagining we’ll be able to place them along two continua—one continuum would be an ‘indoors’ versus an ‘outdoors’ orientation, based on how relevant the outdoors is to them; the other would be a more active versus a less active orientation.”

What might emerge from the study would be the identification of several subtypes of older adults, and recommendations for a menu of different options—for housing, group versus individual programming, directed versus nondirected

activities, as well as indoor versus outdoor—that could help guide choices within and across facilities, explains Chodzko-Zajko. “There’s no data to support the notion that ‘if you build it [a particular type of environment], they will come.’ What we do know is that all physical activity takes place in some kind of environment, and that things often can be done to enhance that environment for physical activity. But personal preferences also have to be taken into account,” he concludes.

## Rewarding progress

Currently, the United States Environmental Protection Agency (EPA) is taking the lead in both assessing and recognizing efforts at the neighborhood,

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## Snapshot: Portland [Oregon] Bureaus of Parks & Recreation and Transportation

Portland Parks & Recreation and Bureau of Transportation, which won an EPA Building Healthy Communities for Active Aging Award in 2008, is helping to facilitate participation in outdoor activities by locating age-friendly recreational programs and activities within walking distance of homes and local transportation. Two such programs—Senior Strolls and Biking is Back (Senior Cyclist Program)—are specifically designed for older adults. The two programs were launched after a study done with the advocacy group Elders in Action showed that the city’s elders could benefit from initiatives that promoted walking and other forms of physical activity, explains Donna Green, a transportation demand management specialist II in the Transportation Options Division of Portland’s Bureau of Transportation.

When planning routes for Senior Strolls, Green ensures that walks start and end near public transit. Each walk



*Portland’s Biking is Back program supplies recumbent bikes and helmets to older adults who join the popular ride along a scenic trail. Image courtesy of the City of Portland*

originates in a different part of the city, and is built around a point of interest such as a school, church or garden. She starts the season with the shortest route (1.3 miles) and gradually progresses to allow participants to build up endurance. By the end of the season, the group is walking about 2.5 miles.

Participants are mainly women in their 70s who are reluctant to walk alone and

appreciate the structured program, according to Green. A recent survey revealed that of the 300 people who participated in Senior Strolls since 2005, 53% say they walk more and 71% report they have replaced at least one driving trip with a walking trip. Graduates of the walking program have the option to move on to progressive hiking programs, which can lead to wilderness hikes.

The Biking is Back program provides three-wheel recumbent bikes and helmets to older adults for a few dollars per ride. The program is very popular, drawing about 250 participants per session. “The program runs in the same park all season, so it’s easy to build a following,” says Green. “And it’s fun, so everyone wants to do it.” Experienced cyclists who want to ride through the city have a network of bike lanes to choose from, plus the city provides bike maps, racks, and other cycling programs.

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tribe, municipality, county or regional levels to combine active-aging concepts—such as enhancing environments to promote physical activity—with “smart growth” concepts. According to EPA, “Smart growth strives to minimize the impacts of our built environments both on human health and the natural environment by integrating environmental considerations into developmental patterns.”

The National Recognition Program for Communities that Combine Smart

Growth and Active Aging includes an awards program (supported by ICAA and other organizations), known as the Building Healthy Communities for Active Aging Awards. EPA presents these awards to communities that demonstrate the best and most inclusive overall approach to implementing smart growth and active aging. This initiative emerged from a stakeholders meeting several years ago that aimed to promote a systems approach to building active communities for healthy aging—communities that would address the documented need for

regular physical activity, the growing problem of obesity, and the need to protect the environment, explains Kathy Sykes, senior advisor to EPA’s Aging Initiative.

The recognition program came out of that meeting, as did a community self-assessment tool. Available online, the Self Management Assessment and Resource Tool contains 20 questions that chart progress being made in mixed land uses;

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## Snapshot: Medford Leas Continuing Care Retirement Community

The founders of Medford Leas, a not-for-profit Quaker-related CCRC, “saw the wisdom of encouraging people to get outside and be with nature,” comments Community Relations Director Jane Weston. The community has campuses in Medford and in Lumberton, New Jersey, both designated arboretums, which together are known as the Lewis W. Barton Arboretum and Nature Preserve.

Both campuses have nature trails; activity trails suitable for bike riding, walking, and wheelchair ambulation; canoe docks; a greenhouse; and some of the usual fitness amenities such as swimming pools and tennis courts. Residents grow flowers and vegetables in designated farm plots, with their efforts culminating in an annual flower and garden harvest show in September. In addition, the Medford Campus has two greenhouses and a Nature Center.

Interestingly, the community does not hold organized classes outdoors. “We have plenty of classes in the fitness centers,” says Weston. “Outdoors, social groups organize themselves, mainly around the activity or nature trails.



*Medford Leas communities provide designated farm plots for residents, where they can grow flowers and vegetables. Image courtesy of Medford Leas*

People might walk together in the morning, then have breakfast, and then go their own ways. Some prefer to do a solitary meditative walk. So it’s important that they have options,” she stresses.

Because the original property in Medford was a farm, “the space has given us flexibility over the years to retain the Nature Preserve, and build the Nature Center

and the greenhouses and other areas that celebrate nature,” Weston affirms. Nevertheless, many facilities might consider implementing similar projects, albeit on a smaller scale. Readers are invited to contact Weston directly at [janeweston@medfordleas.org](mailto:janeweston@medfordleas.org) for information on the community’s programs and resources.

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## Age-friendly outdoor spaces: a checklist



Seating contributes to activity-friendly outdoor spaces for older adults. Image courtesy of Access to Nature

The World Health Organization's 2007 guide to age-friendly cities offers checklists of key features for areas that include housing, transportation, outdoor spaces and more, so cities can assess their environments and map progress. The checklist below is adapted from a partial list of the age-friendly features for outdoor spaces and public buildings mentioned in the guide.

### Well-maintained, safe green spaces *with:*

- adequate shelter
- toilet facilities (clean, secure, handicapped accessible)
- easily accessed seating

### Pedestrian friendly walkways *with:*

- no obstructions
- smooth surfaces
- public toilets in convenient locations (clean, handicapped accessible)
- easy accessibility
- separate cycle paths

### Well-maintained outdoor seating *with:*

- areas to sit in outdoor spaces (particularly parks, public spaces and transport stops)
- regular intervals between seating areas

### Well-maintained pavements/ sidewalks *with:*

- smooth, level, nonslip surfaces
- sufficient width for wheelchairs
- dropped curbs (which taper off to road level)
- no obstructions (e.g., parked cars, trees, snow, dog droppings)

*For the full checklist, view or download the WHO guide at [www.who.int/ageing/publications/Global\\_age\\_friendly\\_cities\\_Guide\\_English.pdf](http://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf).*

### Reference

World Health Organization. (2007). *Global Age-friendly Cities: A Guide*. Geneva, Switzerland: World Health Organization Press.

locating stores near where people live; and creating walkable neighborhoods. The EPA also developed fact sheets that explain the connections between the environment and specific health issues, and translated them into 15 languages.

“We can support the goals of smart growth and encourage physical activity by how we build our communities,” Sykes says. “Do we have trails, parks, sidewalks, open space? Whereas years ago we knew we had to look at the environmental impact of building roads and bridges in a community, now we must also look at the public health impact of doing that.”

Although many of the factors that facilitate physical activity and active aging overall have been identified, communities must address these factors in their own ways. “We have a diverse set of communities in the United States,” notes Sykes. “How things are being done in Portland, Oregon, for example [see page 34], is different from what’s being done in Atlanta, Georgia. Atlanta had to make zoning code changes to permit mixed land use opportunities, and also worked on bringing the community together around increasing housing options,” she continues. Kirkland, Washington, on the other hand, adopted street ordinances that facilitated the establishment of walking clubs.

“One very positive development is the transportation authorization bill, which recognizes that, these days, mobility isn’t just about moving cars; it has to do with people on foot, bicycles and public transportation as well,” Sykes observes. “The idea is spreading around the country and around the world. What’s exciting is that so many people are now convinced of the benefits. That’s great,” she adds, “because it will make a difference for both environmental and public health.”

Indeed, the movement has taken on global proportions, as evidenced by the



*Nature and activity trails encourage Medford Leas residents to 'get outside and be with nature.' Image courtesy of Medford Leas*

World Health Organization's publication in 2007 of the first guide on age-friendly cities<sup>8</sup>—a resource based on consultations with older people in 33 cities in 22 countries.

WHO's age-friendly city concept builds on the organization's existing active-aging framework, according to the guide. As defined in the publication, "Active aging is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. In an age-friendly city, policies, services, settings and structures support and enable people to age actively ...." Practically speaking, that means a city "adapts its structures and services to be accessible to and inclusive of older people with varying needs and capacities." This includes the physical environment, which is one of active aging's determining factors.

"Active aging in supportive, enabling cities will serve as one of the most effective approaches to maintaining quality of life and prosperity in an increasingly older and more urban world," states the WHO guide. Safe, thoughtfully designed outdoor spaces will be a foundation of these communities. ☺

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## References

1. Jacobs, J. M., et al. (2008). Going Outdoors Daily Predicts Long-Term Functional and Health Benefits Among Ambulatory Older People. *Journal of Aging and Health*, 20(3), 259–272.
2. *National Blueprint: Increasing Physical Activity Among Adults Aged 50 and Older*. (2001). Princeton NJ: Robert Wood Johnson Foundation. Information is available at <http://www.agingblueprint.org/>.
3. Rantakokko, M., et al. (2009). Fear of Moving Outdoors and Development of Outdoor Walking Difficulty in Older People. *Journal of the American Geriatrics Society*, 57(4), 634–640.
4. Park, S., et al. (2008). Can Older Gardeners Meet the Physical Activity Recommendation through Gardening? *HortTechnology*, 18(4), 639–643.
5. Park, S., et al. (2009). Physical and Psychological Health Conditions of Older Adults Classified as Gardeners or Nongardeners. *HortScience*, 44(1), 206–210.
6. AARP. (2002). Exercise Attitudes and Behaviors: A Survey of Midlife and Older Adults. Available at <http://www.aarp.org/research/health/healthquality/aresearch-import-659.html>.
7. Maas, J., et al. (2008). Physical Activity as a Possible Mechanism Behind the Relationship Between Green Space and Health: A Multilevel Analysis. *BMC Public Health*, 8, 206.
8. World Health Organization. (2007). *Global Age-friendly Cities: A Guide*. Retrieved from [www.who.int/ageing/publications/Global\\_age\\_friendly\\_cities\\_Guide\\_English.pdf](http://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf).

## Resources

### Internet

**Access to Nature for Older Adults**  
A new three-DVD program combined with interactive website resources  
[www.AccessToNature.org](http://www.AccessToNature.org)

**City of Rogers: Adult Wellness Center**  
[www.rogersarkansas.com/wellnesscenter](http://www.rogersarkansas.com/wellnesscenter)

**Design for Generations, LLC**  
[www.designforgenerations.com](http://www.designforgenerations.com)

**Environmental Protection Agency (EPA): Aging Initiative**  
[www.epa.gov/aging](http://www.epa.gov/aging)

**Medford Leas**  
[www.medfordleas.org](http://www.medfordleas.org)

**Portland Parks & Recreation Senior Recreation: Biking is Back**  
[www.portlandonline.com/TRANSPORTATION/index.cfm?c=37401&a=155167](http://www.portlandonline.com/TRANSPORTATION/index.cfm?c=37401&a=155167)

**Portland Senior Strolls**  
[www.GettingAroundPortland.org](http://www.GettingAroundPortland.org)

**World Health Organization's Global Age-friendly Cities: A Guide**  
[www.who.int/ageing/publications/Global\\_age\\_friendly\\_cities\\_Guide\\_English.pdf](http://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf)

### Print

**A New Tool for Evaluating Senior Living Environments**  
Susan Rodiek  
*Seniors Housing & Care Journal*, 16(1), 3–9, 2008

*Re-Creating Neighborhoods for Successful Aging*  
Pauline S. Abbott, Nancy Carman, Jack Carman, & Bob Scarfo, Eds.  
Health Professions Press, 2009

*Role of the Outdoors in Residential Environments for Aging*  
Benyamin Schwarz & Susan Rodiek  
Haworth Press, 2006