



**FINAL NARRATIVE REPORT**  
**October 7, 2005**

## **Active Living by Design: Creating Activity-Enhancing Residential Settings**

RWJF Grant Identification Number:

Dates of the project: 8/03-6/05

Total amount of the project:

Goal of the project from the proposal:

The focus of this study is to identify planning, programming and design factors in residential settings that encourage people over 50 to remain active, such as site selection, connection to the surrounding community, site design and walking paths, interior layout and circulation and provision of activity spaces, as well as more subtle factors such as overall wayfinding and ambience

Contact information for Principal Investigator

**Craig Zimring, Ph.D.**

Professor

College of Architecture

Georgia Institute of Technology

Atlanta, Georgia 30332-0155

Phone: (404)894-3915 Fax: (404)385-2916

email: [craig.zimring@arch.gatech.edu](mailto:craig.zimring@arch.gatech.edu)

**1. What measurable goals did you set for this project and what indicators did you use to measure your performance? To what extent has your project achieved these goals and levels of performance?**

This study documents current support for everyday physical activity in the design and programming of continuing care retirement communities (CCRCs). Most previous research has focused on younger adults. The research team conducted an online and paper survey with 759 communities to assess current physical provisions for everyday physical activity, physical activity-related programs and the funding and administration of physical activity-related programs; the overall response rate is 52 percent (398/759). The surveys were addressed to facility administrators, who were asked to direct specific questions to others in their facility as needed.

The data from the study show that most campuses are located either in suburban areas or in small cities, are less than 50 acres in size and are either entirely flat or are mostly flat with some gradual slopes. Half of all campuses surveyed are less than 30 years old. The campuses surveyed have many different types of outdoor features that support participation in physical activity such as walking paths, gardens, garden plots, swimming pools etc. In addition, most campuses have supportive indoor environments with features such as corridors with seating every 30'-50' and corridors with views to the outdoors. Few campuses (14%) have buildings specifically dedicated to physical activity, but many campuses have indoor physical activity facilities such as fitness rooms with equipment, multipurpose activity rooms and dedicated physical therapy rooms on campus.

Based on the literature, it was hypothesized that the environment influenced participation in physical activity at three different spatial scales – at the level of the outside community, at the campus level and at the building level. We used the data from current study to explore relationships between environmental factors at different scales and participation in physical activity found to be plausible based on previous research.

At the neighborhood scale, previous research had indicated that people who live within walkable distance of community resources and who have more resources/destinations within walkable distance tend to be more active. Also characteristics of the neighborhood such as presence/absence of sidewalks, speed of traffic on streets and difficulty in crossing streets may restrict access to community resources. However, existing studies have been conducted with neighborhood dwelling older adults. Retirement communities are often quite self sufficient and large in size with many different types of amenities within campus. We were interested in finding out whether the presence of attractions in the outside community was still related to participation in physical activity (on campus).

Campuses that have more attractive features within walking distance in the outside community tend to have more independent living (IL) residents participating in activities such as walking clubs, yoga, dance and Tai Chi. Also more IL and nursing care (NC) residents were physically active for at least 30 minutes 3 times a week in campuses that had a higher number of attractive features in the outside community. One limitation of the survey is that resident participation in physical activities in the outside community could not be gauged.

At the campus level, several interesting issues emerge. More independent living residents participate in activities such as golf, swimming, water aerobics and tennis in larger campuses. On the other hand, NC residents participate in at least 30 minutes of PA 3 times a week in smaller campuses. This is consistent with research findings (Lemke & Moos, 1989) that suggest that independent older adults are more active in larger communities while more residents are more active in smaller communities. Another finding that is consistent with research is that more IL residents walk on their own in campuses that are entirely flat as compared to other types of campuses.

Taken together, there is preliminary support for creating more protected outdoor landscapes with courtyards and covered pathways that may form part of a regular walking route for a walking club. This may be considered as part of future studies or interventions. Another finding of interest is that more IL residents walk to meals on a regular basis on campuses with either indoor connections or covered outdoor trails/paths between buildings. This suggests that walking to meals – a regular instrumental activity for residents in most retirement communities may be facilitated by the presence of protected connections between buildings.

A variety of programming-related campus characteristics—that tap how much and in what ways physical activity is formally and informally supported on campuses—are associated with higher resident physical activity levels. These relationships are more common among independent living (IL) residents, but some also occur among assisted living (AL) and nursing care (NC) residents. There are numerous ways in which campuses can encourage residents to participate in particular types of physical activity as well as to engage in at least 30 minutes of physical activity at least three days a week. Our survey results show that about half of the programming characteristics measured are associated with more residents engaging in at least 30 minutes of physical activity at least three days a week in at least one setting (IL, AL, or NC). The physical activities most frequently associated positively with the presence of different programming characteristics examined include aerobics, water aerobics, swimming, and walking (on one's own or in a club). There is room for improvement among campuses to increase the percentage of residents engaging in physical activity. These results give campus management and residents ideas for how to begin to improve physical activity participation among campus seniors.

The degree to which campus residents support physical activity – as measured by resident involvement in organizing, funding, and publicizing physical activities – makes a difference. Campuses that have greater resident support for physical activity have more IL residents participating in 10 out of 13 different types of specific physical activities. The importance that campus management places on resident physical activity also matters. Campuses in which management places more importance on encouraging physical activity among residents are likely to have more residents in all settings engage in physical activity for at least 30 minutes a day, three days a week. The relationship is weak but significant, being stronger among NC residents and AL residents than among IL residents. This finding suggests that a social environment in which management and staff

encourage physical activity among NC and AL residents may play a valuable role in increasing their levels of physical activity.

Availability and access to physical activity opportunities on campus is important. Campuses that offer aerobics, swimming, golf, water aerobics, dance, tai chi, and yoga on campus have more IL residents engaging in these activities and engage in at least 30 minutes of physical activity at least three times per week (compared to campuses not offering these activities). These relationships between activity opportunities and participation are not as strong for AL and NC residents.

In general, having a physical activity offering on campus is associated with more participation in that activity than when the activity is available off campus. However, campuses with access to dance and tennis within ¼ mile from campus have more IL and AL residents engaging in at least 30 minutes of physical activity at least three times per week (compared to campuses not offering these activities off campus). Golf, dance, and yoga in the outside community are linked to more physical activity among IL residents.

The number and variety of physical activity opportunities is important. This suggests that, while there are many factors that may affect the likelihood of a resident engaging in physical activity, the presence of multiple different kinds of opportunities for physical activity on campus or in the outside community may play a role. Findings also suggest that campuses which do not have the capacity to provide particular activities (i.e., golf, dance, yoga, tennis) on campus should identify their availability in the local outside community and facilitate residents' access to them.

Campuses with better (self-rated) physical activity facilities and activities tend to have more IL residents participating in a large variety of different physical activities. This relationship occurs with a larger number of physical activities among IL than among AL and NC residents, and the IL relationships are stronger. Campuses with better (self-rated) physical activity facilities and activities also tend to have more IL and AL residents engaging in physical activity for at least 30 minutes a day, three days a week.

Campuses using more types of sources to finance the costs of physical activity (programming, buildings, and equipment) have more IL residents participating in a variety of physical activities including swimming, water aerobics, golf, dance, tennis, aerobics, yoga, physical therapy, and tai chi. This relationship holds for fewer activities among AL residents (physical therapy, swimming, and walking) and NC residents (water aerobics).

Promoting physical activity through campus-based channels can make a difference in physical activity levels. Among the channels campuses use to promote physical activity opportunities to residents, the use of internal media (e.g., TV stations, radio) is associated with greater engagement in a larger number of physical activities (for IL and to a lesser extent AL residents) than any other channel. Distributing memos and newsletters to residents and the use of medical staff advisement to encourage physical activity are also associated with somewhat greater IL involvement in several activities.

Campuses using more of a variety of channels to promote physical activity among residents tend to have more IL and AL residents doing water aerobics, yoga, swimming, and aerobics. The use of more promotion channels is also associated with greater participation by IL residents in a variety of other activities, including dance, golf, bowling, tai chi, and physical therapy. This suggests that, particularly for IL residents but to a lesser extent also for AL residents, getting the word out about physical activity opportunities is associated with more residents partaking of those opportunities.

Accreditation is related to physical activity. The Continuing Care Accreditation Commission (CCAC) within the Commission on Accreditation of Rehabilitation Facilities (CARF) accredits CCRCs. There are 340 accredited CCRCs in the US. About one-third of the responding CCRCs have CCAC accreditation. Campuses with CCAC accreditation have, on average, slightly more IL residents engaging in the following organized activities (compared to those responding CCRCs that are not accredited): aerobics, swimming, water aerobics, and yoga. CCAC-accredited campuses also have slightly more AL residents walking as part of a club and somewhat more NC residents doing aerobics. Accredited CCRCs have greater engagement among IL residents in physical activity for at least 30 minutes a day, three days a week than non-accredited CCRCs.

## RECOMMENDATIONS

### Suggestions for Planning, Design and Programming

Finding	Recommendation
<b>Physical Design</b>	
Residents are more active in communities which have attractive outdoor features (shops, parks, beaches, etc) within walking distance in the outside community	Consider locating campus within easy access (either walking or through transportation) to attractive destinations in the outside community
Size of campus matters –more IL residents are active in larger campuses and more NC residents are active in smaller campuses	Consider providing a range of options of living spaces, especially smaller, more contained settings for NC residents within the larger campus
More residents participated in activities such as dance, bowling and aerobics in campuses with tall buildings.	Consider locating activity areas and exercise rooms within easy physical access of resident apartments (e.g. in same building)
Campuses with more outdoor features on campus (swimming pool, paths, gardens, courtyards) tend to have more residents participating in many different activities, especially swimming and water aerobics.	Outdoor features such as parks, gardens, lawn bowling areas can be incorporated into the landscape to support resident physical activity
Visibility of outdoor features such as courtyards as well as presence of covered	Consider creating more protected outdoor landscapes with courtyards and covered

outdoor connections between buildings is related to IL and AL residents walking as part of clubs	pathways that may form part of a regular walking route for a walking club.
More IL residents walk to meals on a regular basis on campuses with either indoor connections or covered outdoor trails/paths between buildings.	Consider connecting resident apartment buildings with central dining services where feasible.
Campuses with more indoor physical activity facilities on campus tend to more residents participating in different physical activities	Consider providing easily accessible physical activity facilities such as exercise rooms, indoor swimming pools.
<b>Programming</b>	
Campuses that have greater resident support for and involvement with organizing and publicizing physical activity opportunities have more physically active IL residents.	Consider providing opportunities for residents to organize physical activity programs (e.g., walking and other exercise clubs). Approach resident council to play a role in publicizing physical activity opportunities and to raise funds for physical activity programs and facilities. Consider ways to get feedback from residents on new physical activity opportunities they would like. Consider bringing in a speaker from the local outside community (e.g., a graduate student from local university studying exercise and/or elder health, a professor, or another professional with relevant expertise) to provide educational sessions for residents on the importance of regular physical activity.
Campuses in which management places more importance on encouraging physical activity among residents tend to have more physically active residents in all settings.	Consider having an in-service to educate all staff on the importance of physical activity for residents in all settings. Using staff input, determine ways that staff can create an environment that encourages physical activity among residents. Consider also reviewing formal and informal policies and practices in your community that may, directly or indirectly, promote or hinder an environment conducive to a physically active resident lifestyle.
Across all three settings, campuses that offer aerobics and dance on-site have more residents engaging in physical activity than campuses without these offerings.	Consider adding aerobics and dance opportunities on campus, if not already doing so.
AL and IL residents are more active in	Campuses which do not have the capacity

communities which access to more off campus organized physical activities available.	to provide particular activities (i.e., golf, dance, yoga, tennis) on campus could identify their availability in the local outside community and facilitate residents' access to them.
Promoting physical activity opportunities through campus-based channels can help enhance physical activity levels among IL and AL residents.	Consider using a variety of channels (e.g., internal media such as TV or radio, memos, newsletters and medical staff advisement) to publicize programming opportunities and the importance of regular physical activity.
Providing the latest, best quality physical activity programming opportunities can positively affect IL residents' physical activity levels, while AL and NC residents' activity levels may depend more on management being committed to creating a social environment supportive of encouraging physical activity for these residents.	Consider offering a balance of self-initiated physical activities (e.g., walking-friendly environments, good-quality exercise equipment) -- that IL residents may be more likely to pursue -- and staff-supervised activities that frailer residents may be more likely to pursue.

**2. Did the project encounter internal or external challenges? How were they addressed? Was there something RWJF could have done to assist you?**

The value of this project resulted from the synergistic strengths of the research partners—the Institute for the Future of Aging Services (IFAS) of the American Association of Homes and Services for the Aged (AAHSA) and an academic research team based at the Georgia Institute of Technology College of Architecture. Both teams included experienced researchers. The IFAS team also brought special strengths in understanding and analyzing programs and management of CCRCs and have longstanding and strong relations with their membership; the College of Architecture brought special skills in environmental and behavioral analysis. However, this initially resulted in some delays while we developed a strong working relationship.

**3. Have there been other sources of support?**

No

**4. What lessons did you learn from undertaking this project?**

In terms of process, this project showed the potential value of collaboration between a professional association and an academic research team, as well as between researchers focusing on programming with those focusing on the environment. In terms of content, the project showed the great interest in physical activity by CCRC managers and clarified how design and programming can support this interest.

**5. What impact do you think the project has had to date? Who can be contacted a few years from now to follow up on the project?**

The project has received considerable attention from the research and CCRC communities. RWJF can contact Dr. Lauren Harris-Kojetin and Dr Craig Zimring.

**6. What are the post-grant plans for the project if it does not conclude with the grant?**

We seek to continue to disseminate the results through publication and presentation as well as continuing to translate the results for use by CCRCs. We also have several research plans if we can find support: { TC "Chapter 6: Discussion" \f C \l "1" }

- *Focus Groups with Residents*: conduct focus groups with residents to understand their view of physical activity and how design and programming can support it.
- *Case Studies*: conduct on-site observation, environmental analysis and interviews of selected CCRCs
- *Checklist*: based on the synthesis paper, survey, focus groups, and case studies, develop a comprehensive checklist for providers of physical design features and programming that might encourage physical activity among residents.

**7. With a perspective on the entire project, what have been its key publications and national/regional communications activities? Did the project meet its communications goals?**

The reception that the project has received shows real interest in this issue among both researchers and caregivers. The project team recently learned that a paper discussing the role of programming for physical activity won the best paper award for *Seniors Housing & Care Journal*. We have been active in presentation and publication and will continue to be.