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CHAPTER 23

Age-friendly environments and their role in supporting Healthy Ageing

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Introduction to age-friendly environments

Both older people and the environments in which they live are diverse, dynamic, and changing. In interaction with each other they hold potential for enabling or constraining *Healthy Ageing* (Box 23.1). Supporting the physical and mental capacities of older people has long been an important focus of geriatric medicine. In this chapter, we consider these intrinsic capacities within the framework of *Healthy Ageing* (World Report on Ageing and Health, 2015), discussing how key environments in the lives of older persons may enhance their ability 'to be and to do what they value'. (This chapter draws on the evidence in the *World Report on Ageing and Health*. See also Chapter 161 from this book for a full explanation of the *Healthy Ageing* framework.)

Understanding key environments of ageing sheds light on how living situations might have a differential impact on older people. Personal characteristics such as gender, ethnicity or level of education may result in unequal access to material or psychological support, or limit community engagement and, thus, affect an older person's ability to experience *Healthy Ageing*.

Importantly environments influence *Healthy Ageing* in two ways:

1. By building and maintaining *intrinsic capacity*, through reducing risks (such as high levels of air pollution), encouraging healthy behaviours (such as physical activity) or removing barriers to them (e.g. high crime rates or dangerous traffic), or by providing services that foster capacity (such as healthcare);

2. By enabling greater *functional ability* through extending what people can do beyond their level of intrinsic capacity (e.g. by providing appropriate assistive technologies and accessible public transport).

Environments are hence very important determinants of the trajectories of intrinsic capacity and functional ability over a person's life course and into older age. Several domains of functional ability appear particularly important. These are the abilities to:

◆ meet basic needs;

◆ be mobile;

◆ build and maintain relationships;

◆ learn, grow, and make decisions;

◆ contribute.

These abilities (see Box 23.2) are essential for older people to do the things that they value. Together they enable an older person to age safely in a place that is right for them, to continue to develop personally, and to contribute to their communities while retaining autonomy and health.

Three of these abilities are used to illustrate the importance of environments in enhancing healthy ageing. These are meeting basic needs, being mobile, and building and maintaining relationships.

Ability to meet basic needs: the importance of housing

Housing is an important basic need. Older people want a home that enables them to be safe and comfortable regardless of their age, income, or level of capacity. For some, this may mean the desire to age in place—that is, to remain in their homes and communities as they get older (Pope & Kang, 2010; Wagner *et al.*, 2010; Braubach & Power, 2011; Wiles *et al.*, 2012; Hui *et al.*, 2014). For others, ageing in place may not be desirable because their housing is inadequate, their neighbourhood has experienced decline, or the community networks and services that they relied on have been eroded. In low resource settings, limited basic amenities, multiple safety risks and overcrowded intergenerational households may restrict both comfort and security (Aboderin, 2015; van der Pas *et al.*, 2015). The inability of older people to meet their need for adequate housing can be both cause and effect of reduced capacity, but environments play a fundamental part.

One way to reduce environmental demands related to housing is to do home modifications, conversions, or adaptations made to the permanent physical features of people's homes. These can reduce the demands from the physical environment and are of particular importance for older adults who are likely to spend more time in their homes when compared with younger people. Furthermore, they may have less intrinsic capacity with which to navigate barriers such as stairs, poor lighting, or inaccessible bathrooms (Wahl

Box 23.1 Healthy Ageing

The *World Report on Ageing and Health* defines *Healthy Ageing* as the process of developing and maintaining the functional ability that enables well-being in older age.

Functional ability comprises the health-related attributes that enable people to be and to do what they have reason to value. It is made up of the physical and mental (intrinsic) capacities of the individual and relevant environmental characteristics within which an individual interacts.

Intrinsic capacity is the composite of all the physical and mental capacities of an individual.

Environments comprise the contexts of an individual's life. For older adults, key environments include home, social relationships, neighbourhoods, and communities. Environments that are age-friendly help to build and maintain intrinsic capacity while enabling greater functional ability.

Well-being is considered in the broadest sense and includes domains such as happiness, satisfaction, and fulfilment.

Source: data from WHO. *World Report on Aging and Health*, http://apps.who.int/iris/bitstream/10665/186463/1/9789240694811_eng.pdf?ua=1,Geneva, World Health Organization, Copyright © 2015 World Health Organization.

Box 23.2 Domains of functional ability

Healthy Ageing aims to build and maintain functional ability. There are five key domains of functional ability, each of which can be enhanced (or constrained) by environmental characteristics.

1) *The ability to meet basic needs* includes being able to afford an adequate diet, clothing, suitable housing, and healthcare. It also extends to minimize the economic impact of life transitions such as the onset of disability, death of a spouse, or losing the means of livelihood.

2) *The ability to learn, grow, and make decisions* include opportunities to learn and apply knowledge, engage in problem solving, continue personal development, and make choices.

3) *The ability to be mobile* refers to movement in all its forms, whether powered by the body (with or without an assistive device) or a vehicle. Mobility includes getting up from a chair or moving from a bed to a chair, walking for leisure, exercising, completing daily tasks, driving a car, and using public transport.

4) *The ability to build and maintain relationships* refers to the social relations older people have with their children and other family members, intimate partners, friends, neighbours, colleagues, and acquaintances.

5) *The ability to contribute* encompasses contributions that older people make to their families and communities, such as assisting friends and neighbours, mentoring peers and younger people, caring for family members, and being engaged in the labour force or voluntary activity.

Source: data from WHO. World Report on Aging and Health, http://apps.who.int/iris/bitstream/10665/186463/1/9789240694811_eng.pdf?ua=1,Geneva, World Health Organization, Copyright © 2015 World Health Organization.

et al., 2012; Braubach & Power 2011; Tanner *et al.*, 2008). Declines in intrinsic capacity are the most common reasons why older people become unable to cope in their existing residence and need to move (Nygren *et al.*, 2007). When people experience a significant loss of capacity, previously minor household barriers may become major obstacles to managing their daily needs. This may mean that older people are unable to return home after being hospitalized, or that they need to transition to more supportive housing (Perry *et al.*, 2014).

Home modifications can have a multitude of benefits: they may make tasks easier; reduce health risks such as falls; provide better security; help older people maintain their independence over time; and have positive impacts on their social relationships and networks, thus facilitating their continued engagement with society (Swedish National Institute for Public Health, 2006; Tanner *et al.*, 2008; Fänge & Iwarsson, 2005). Home modifications have been found to be cost-effective. For example, a study on housing adaptations in England and Wales found that minor adaptations, such as the installation of ramps, rails, overbath showers, and door entry systems produced a range of positive effects: 62% of respondents suggested they felt safer from the risk of accident, and 77% perceived a positive effect on their health. Major adaptations such as bathroom conversions, extensions, and lifts in most cases had transformed people's lives. Whereas before adaptations people had used words such as 'degraded', 'prisoner', and 'afraid' to describe their situation, after adaptation they spoke of themselves as 'independent', 'useful', and 'confident' (Heywood, 2001).

Adaptations of the physical home environment may often need to be complemented by the provision of assistive devices or services, such as house cleaning, grocery shopping, cooking, feeding, washing, and other activities of daily living.

Ability to be mobile—the importance of physical activity

Mobility is influenced by an older person's intrinsic capacity to move and the environments they inhabit. The changes in physical and mental capacity that are common in older age can limit mobility. However, capacity can be built and age-friendly environments can extend what a person can do. Using a walker or wheelchair can enable a person to move around in and outside their home; ensuring that buildings have ramps, handrails, elevators, and appropriate signage make them more accessible. Providing public transport that is physically accessible and affordable assists older people in getting where they want to go.

If these adaptations and supports are not available, however, declines in mobility can further lead to decrements in health, increase the risk of falls (Perracini *et al.*, 2016) and depression (Ross *et al.*, 2013) with negative consequences for their autonomy, social engagement, civic participation, and well-being, which ultimately affects all domains of functional ability (Yeom *et al.*, 2008; Yeom *et al.*, 2009; Webber *et al.*, 2010; Shumway-Cook *et al.*, 2005; Nordbakke *et al.*, 2014).

Encouraging and facilitating physical activity is a key strategy for promoting healthy ageing. Intrinsic capacity to move can be built, maintained, and in some cases recovered through physical activity. But older peoples' decision to exercise is strongly influenced by social and physical environments (Yen *et al.*, 2014; Shumway-Cook *et al.*, 2002; Kegler *et al.*, 2008; Li *et al.*, 2005; Rantakokko *et al.*, 2013). Attitudes are highly influential—if older people believe

injury risk is heightened with physical activity or if they do not feel safe in their neighbourhood, for example, they may restrict their movements. Negative aesthetics and perceived barriers in the neighbourhood—such as poor or absent sidewalks, lack of places to rest or public toilets, heavy traffic, and insufficient crossing times at traffic lights—can also deter older people from walking by themselves in the neighbourhood (Frank *et al.*, 2005; Chad *et al.*, 2005; Prohaska *et al.*, 2006).

In contrast, access to safe spaces for walking such as footpaths, green spaces such as parks, access to local facilities, goods, and services, seeing others exercising in the same neighbourhood and regular participation of friends and family all positively influence physical activity levels (Li *et al.*, 2005; Gile-Corti & Donovan, 2003; Booth *et al.*, 2000; Wilcox *et al.*, 2003). Opportunities for individual and group exercise tailored to older people such as senior hours at public swimming pools and outdoor fitness equipment in parks are examples of positive mechanisms for encouraging exercise.

Attempts to promote physical activity will more likely be effective if they are accompanied by actions to adapt the community environment. Accessible transport such as low floor buses with priority seating, bus drivers that are sensitized to the varying needs of older people, and fares that are affordable for pensioners can be very effective where available. Community services that provide tailored support to those older people who are too frail or compromised in their mobility to use general public transportation services, include call-a-ride programmes or driving services that pick up older people in their homes to enable them to participate in community activities such as church services, sports activities, and cultural events to remain engaged and connected with their communities.

Abilities to build and maintain relationships—the importance of reducing social isolation and loneliness

Maintaining relationships is central to well-being (Carstensen, 2006). When positive, social relations with family members, friends, and neighbours can yield resources such as trust and social support. Strong social networks can also enhance older people's longevity and quality of life, protect against function decline and promote resilience (Berkman *et al.*, 2000; Ramlagan *et al.*, 2013; Holt-Lunstad *et al.*, 2010; Giles *et al.*, 2005; Mendes de Leon *et al.*, 2001; 2003; Cohen, 1988).

Social networks tend to shrink in older age, because of life transitions such as retirement, relocation to supportive housing, and the loss of friends and partners through death. When physical and mental capacities decline, older people may find it more difficult to maintain their relationships or build new ones. These experiences can increase the risk of loneliness—dissatisfaction with the quantity and quality of social relations (Fokkema *et al.*, 2011), and of social isolation—lack of social contact (Health Quality Ontario, 2008).

Estimates of the prevalence of social isolation among community-dwelling older people range from 7 to 17%, depending on the definition and outcome measures used, while approximately 40% of older people report feeling lonely (Dickens *et al.*, 2011). The causal links are difficult to determine but loneliness, social isolation, behavioural risk factors, and poor health can have a significant impact on an older person's risk of functional limitations, disability, and death (Nyqvist *et al.*, 2013a, b; Tilvis *et al.*, 2011). Preventing involuntary social isolation and strengthening supportive social networks, on the other hand, can enhance both capacities and functional ability.

Environments have enormous potential to reduce the risk of experiencing social isolation and loneliness. Examples include providing direct care and support, facilitating group events such as community-based exercise programmes or skills development, using the phone or internet to link people, and provide opportunities for developing new social ties and for meaningful social roles. Creating opportunities for social interaction through dedicated facilities, special events, classes, and gathering places all can enhance social connections. Many cities and communities offer senior or community centres that provide space to meet and organize group activities. Box 23.3 on multigeneration centres in local communities across Germany provides an example that aims to counteract social isolation and promote intergenerational relationships and mutual support.

Volunteering, which provides opportunities for older people to stay socially engaged, can be positive for older people and their communities (Heaven *et al.*, 2013). Research in the United States and Japan has found that volunteer programmes which place older volunteers in public elementary schools in meaningful roles designed to meet the schools' unmet needs also increase the social, physical, and cognitive activity of the volunteers (Hong & Morrow-Howell, 2010; Fujiwara *et al.*, 2009). The Experience Corps in the American Association of Retired Persons has members across the country who tutor and mentor students. Randomized trial studies evaluating the impact of Experience Corps participation have found an increase in participants compared to controls in physical strength and activity; increased cognitive activity; maintenance in walking speed; improved social networks that is, volunteers had people that they could turn to for help; and fewer depressive symptoms (Hong & Morrow-Howell, 2010; Fried *et al.*, 2004). Time banks, in which people trade their time and services for other services, have also been shown to foster reciprocal relationships and build social capital in communities (Forte, 2009).

Implications for geriatric medicine

Environments, including geriatric medical services, directly influence older people's physical and mentally capacity, but can also extend what older people are able to do (their functional ability). As such geriatric medicine can help to ensure that older people can be and to do what they have reason to value.

Geriatricians can foster *Healthy Ageing* and achieve better outcomes by considering older patients within the environments that make up their lives—home, family, and community. This holistic and person-centred approach considers the impact of environments on capacity and ability and the potential success of any interventions. It also recognizes that older people should take or share in making decisions that affect their lives, not only with regard to healthcare decisions about what treatment to have, but also with respect to the broader domains of their lives: how to spend their time, what they learn, and where they live (Stephens *et al.*, 2015).

This final section concludes the chapter with three implications of an environmental approach to healthy ageing for geriatric medicine.

Ensure a holistic view of the older person within their environments

It is important to consider the older person within their immediate and wider environments and the support and services to which

Box 23.3 Multigeneration centres in Germany

Multigenerational centres (MGC) in Germany have transferred the principles of give and take between the generations that were common in extended families in the past to modern society. They provide young and old with a public space in the neighbourhood in which all generations can meet, interact, and benefit from their different competencies, experiences, and interests.

Intergenerational activities are emphasized to enhance connections and mutual support between young and old; for example, older people may teach adolescents old crafting techniques or recipes, who in turn might tutor the older people in the use of computers or smartphones.

The multigeneration houses further act as *information and service coordination focal points* in the community. For example, offering a counselling service for people living with dementia, informing about available support for families providing care at home. Many offer *child and or elder care services* to meet local needs, offering flexible services that complement general daycare and facilitate the reconciliation of work and care. They foster *connections and cooperations with local businesses*, service providers, cultural and educational institutions, and the media. In the city of Bielefeld, for example, a volunteer senior repair service for light repairs such as changing light bulbs is offered by young retirees to older peers, in close coordination with local businesses to ensure complementarity in the services provided.

MGCs provide support across all stages of the life course, for older people in particular they provide supportive services and information that facilitate active participation in community life, provides opportunities for meaningful roles, but also support with activities of daily living that can enable older people to stay in their homes and communities longer. These intergenerational connections also contribute to dispelling myths and negative stereotypes about older people and can contribute to reducing ageist attitudes.

Source: data from Bundesministerium für Familie, Senioren, Frauen und Jugend [Federal Ministry for Family Affairs, Senior Citizens, Women and Youth], http://www.mehrgenerationenhaeuser.de, accessed 01 Dec. 2016, Copyright © Bundesministerium für Familie, Senioren, Frauen und Jugend.

they do, or do not, have access. This will influence the nature of the advice given to prevent or manage diseases, reverse, or slow the decline in capacity, manage chronic conditions, and tackle social isolation. For example, characteristics of an older person's home and neighbourhood can guide recommendations for physical activity. If neighbourhoods are barrier-free and safe, walking may be recommended; when this is not the case, home-based exercise programmes may be preferred. Where adequate exercise programmes are offered by community groups for example, older patients can be encouraged to participate in these and geriatricians or members of the healthcare team can play an active role in informing older people about the services and opportunities at hand.

Because health professionals often have privileged access to older people at critical junctures in their life, such as transitions to retirement, bereavement, or becoming a caregiver, they can be part of a team that can anticipate and prevent risks of social isolation and loneliness. To foster social participation and engagement of older people in the community, geriatricians can ensure that relevant information on services, activities, and opportunities are provided and accessible to older people, especially those who are facing periods of transition and loss, or who are not well connected.

Make health services age-friendly

Social and physical environmental factors can influence access to and use of geriatric healthcare services. Being able to walk to services or the availability of accessible and affordable transportation can influence older people's ability to reach these services. The physical infrastructure—availability of lifts, wide doorways that can accommodate wheelchairs, adequate seating in waiting rooms, clear signage—can all facilitate access and mobility. Ensuring that information on treatment and related services is clear, simple, and accessible (e.g. large print, audio) are important to enable older people to follow treatment advice or access recommended services. The way that services are organized can also impact on the ease by which older people can access services; for example, older people that have difficulty standing and waiting in line may benefit from having preferential queues or allocated seating.

The social environment, such as the presence of stereotypes and ageist attitudes can negatively impact on *Healthy Ageing* by lowering levels of self-efficacy, decreasing productivity, and increasing cardiovascular stress (Levy *et al.*, 1999–2000). Ageist attitudes are widespread, including within the health and social care settings where older adults are at their most vulnerable. It is important to challenge our own and others' negative attitudes and to dispel myths and stereotypes about ageing and combat ageist attitudes, to ensure that older people receive the services they need and are entitled to, and feel positive about themselves and their place in society.

Collaborate with others to achieve better outcomes

Optimizing the functional ability of an older person requires collaboration between health professionals, families, community actors, and other service providers. Geriatricians and other health professionals can play an important role in pointing older patients and their families to relevant services in the community when it becomes apparent that an older person's home no longer represents a good fit with their intrinsic capacity (e.g. when a person has become frail and is at great risks of falls and relevant home adaptations after a stroke). In such situations, coordinated health, social care, and community support services can ensure that optimal support is provided as capacities and needs of older people change over time.

Conclusion

While increasing numbers of people around the world are living longer, many are not living healthier lives. *Healthy Ageing* requires enabling environments that promote healthy behaviours and support functional ability, that reduce inequities, are accessible for and inclusive of all. The creation of age-friendly environments that foster *Healthy and Active Ageing* requires positive attitudes towards ageing that focus on maximizing older people's potential to do the things that they have reason to value, rather than limiting the scope of practice to treating and managing their health conditions. The health sector alone cannot achieve this: *Healthy Ageing* requires a whole society response. Jointly, community actors including local government, health professionals, and other

service providers, local businesses and employers, faith-based and civil society organizations, families and friends can contribute to creating enabling environments that maximize the different domains of functional ability.

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