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## **Health Promotion for People With Disabilities: Implications for Empowering the Person and Promoting Disability-Friendly Environments**

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STATE OF THE ART  
REVIEWSJames H. Rimmer, PhD, and  
Jennifer L. Rowland, PhD, PT, MPHHealth Promotion for People  
With Disabilities: Implications for  
Empowering the Person and  
Promoting Disability-Friendly  
Environments

**Abstract:** *Developing innovative strategies that promote health among people with disabilities has emerged as an important public health priority. People with disabilities report fewer healthy days than the general population and lower rates of health-promoting behaviors (eg, physical inactivity and poor nutritional intake). One of the major priorities in health promotion for people with disabilities is to prevent secondary conditions. Secondary conditions are health concerns that are not a direct result of the primary disability but rather are acquired at a later time due to lifestyle changes associated with the disability (eg, weight gain, pressure sores, pain, fatigue, depression). It is important for health professionals to recognize that the substantial health disparities that exist between people with and without disabilities requires greater attention to establishing disability-friendly environments that reduce architectural, programmatic, and attitudinal barriers*

*that make it difficult for them to engage in self-initiated health promotion practices. Empowering people with disabilities to self-manage their health requires the full support of community service providers in promoting greater access to all health promotion venues, programs, and services.*

**Keywords:** health promotion; disability; empowerment; environment

Many people with disabilities have substantially greater difficulty participating in various types of health-promoting behaviors such as regular physical activity, good nutrition, social activities, regular access to medical care and preventive examinations, smoking cessation classes, and so forth compared with the general population because of limited physical and/or programmatic access to these services and programs.<sup>1-5</sup> Lack of health education and health awareness exacerbates the limited access they have to health

care and health care follow-up, creating formidable barriers to effective health promotion practices.<sup>6</sup> The risk to people with disabilities from low participation or adherence to various types of health promotion programs is particularly troublesome, as they report a lower rate of good health<sup>1</sup> and have a higher number of health conditions (eg, spasticity, seizures, pain, fatigue, depression, obesity).<sup>7</sup>

One measure of the importance of this problem is its economic impact. While people with disabilities account for approximately 17% of the noninstitutionalized population in the United States, their health care expenditures represent a disproportionately greater percentage of total medical expenditures.<sup>8</sup> Total inpatient and medication costs have also been reported to be higher in people with disabilities compared with the general population,<sup>9</sup> and the lack of accessible health promotion programs and services may contribute to a portion of the differences in health care access and health care utilization.<sup>3,10-17</sup>

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There is growing awareness that many health disparities reported among people with disabilities are not necessarily a direct result of having a disability but rather are linked to difficulty accessing community services and programs.<sup>3-18</sup> In the 2005 White House Conference on Aging,<sup>19</sup> experts noted that the lack of appropriately trained health professionals has made it difficult for people with disabilities to self-manage their own health. Physical, programmatic, and attitudinal barriers limit opportunities for participation, thereby increasing health risks among this underserved population.<sup>3,20-22</sup> Compounding the problem is the widely recognized educational achievement gap between people with and without disabilities and the lack of accessible transportation and affordable programs and services, all of which contribute to the ineffectiveness of many health promotion programs offered in most communities to the general public.<sup>23,24</sup>

A critical first step in establishing health promotion programs and services that are accessible to people with disabilities is to understand the dynamic nature between the person and his or her environment.<sup>25</sup> Zola<sup>26</sup> noted that “disabling conditions are not merely the result of some physical or mental impairment, but rather, the fit of such impairments with the social, attitudinal, architectural, and even political environment.” A particularly important and distinct area of health promotion directed at people with disabilities is to reduce secondary conditions, improve functional health, and eliminate environmental barriers to community participation.<sup>20,27-32</sup> The recent Institute of Medicine (IOM) report, *The Future of Disability in America*,<sup>22</sup> emphasized the importance of these areas and recommended that Congress fund research on evaluating the effects of secondary conditions that will help guide clinical practice in their prevention and management, and to identify potential environmental contributors to the onset or severity of secondary conditions. The report noted that the environment has a substantial role in facilitating or impeding health among people with disabilities.

Health promotion efforts targeted to people with disabilities can have a substantial impact on improving lifestyle behaviors,<sup>29,33</sup> increasing quality of life,<sup>2,34</sup> and reducing medical costs.<sup>15,16,35</sup> The aim of this article is to make health professionals aware of the growing need to assist people with disabilities in self-managing their own health by creating disability-friendly communities that eliminate the physical, programmatic, and attitudinal barriers that often prevent or limit their participation in many community-based health promotion programs.

### Health Disparities in People With Disabilities

People with disabilities, as a group, experience poorer health than the general population. Data from the Centers for Disease Control and Prevention 2001 and 2003 Behavioral Risk Factor Surveillance System (BRFSS) highlight self-reported health status among people with disabilities.<sup>1</sup> As shown in Figure 1, people with disabilities report a substantially lower rate of good health compared with the general population. In Figure 2, people with disabilities report a higher incidence of obesity, smoking, and physical inactivity. The median rate of smoking among people with disabilities is 30.5% compared with 21.7% for those without disabilities. Similarly, people with disabilities are more likely to be obese (median, 31.2%) compared with people without disabilities (median, 19.6%), and people with disabilities are more likely to be physically inactive (median, 22.4%) compared with those without disabilities (median, 11.9%).

Of particular concern is the reportedly higher incidence of obesity observed in people with disabilities.<sup>36,37</sup> As disturbing as the obesity prevalence data are for the general US population, data on persons with disabilities are even more alarming. Two reports on the prevalence of obesity among adults with disabilities show a disproportionately higher prevalence of obesity among adults with disabilities. Weil et al<sup>38</sup> pooled data from the 1994-1995 National Health Interview Survey, the 1994-1995 Disability Supplement, and the 1995 Healthy People 2000

Supplement. Among adults with disabilities, 24.9% were obese compared with 15.1% of people without disabilities. The highest prevalence occurred in adults with lower extremity mobility disabilities. In an analysis by the Centers for Disease Control and Prevention of obesity prevalence data from the 1998 to 1999 BRFSS on people with disabilities,<sup>39</sup> regardless of age, sex, or race/ethnicity, people with disabilities were reported to have higher rates of obesity than people without disabilities.

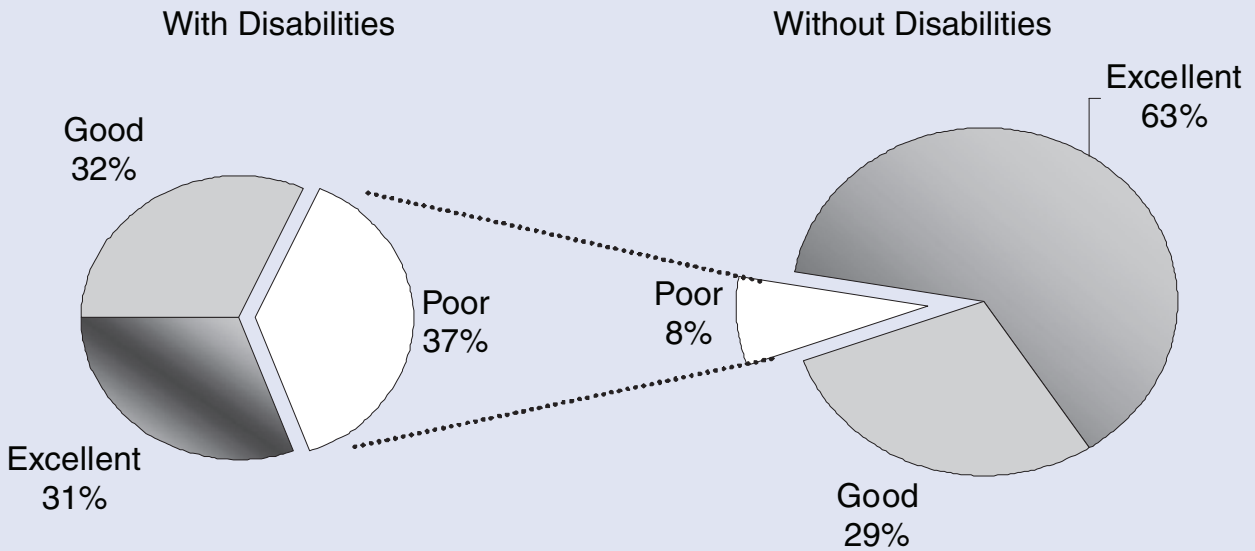
Although obesity results in significant societal and personal costs for all individuals, among people with disabilities it also reduces or limits opportunities for various types of community participation including employment and leisure activities. Wheelchair transfers, rolling up ramps, walking with a cane or walker, and other essential activities become substantially more difficult in disabled individuals who are also obese. These activities often require greater effort from the caregiver or personal assistant, who must assist the individual with various activities of daily living and instrumental activities of daily living.

Several other reports have noted that people with disabilities have substantially high levels of physical inactivity,<sup>31,40</sup> which predisposes them to a significantly higher incidence and severity of secondary conditions<sup>27,41-44</sup> and, in particular, overweight and obesity.<sup>36,38,45</sup> The environment may also have a substantial negative effect on the health status of people with disabilities. Inaccessibility of the built environment may predispose people with mobility disabilities to remain in their homes for longer periods of the day and subsequently lead to a higher incidence of sedentary behavior and increased caloric intake.

The poorer health status observed among people with disabilities creates an unnecessary burden on the individual, caregiver, and/or other family members.<sup>36</sup> Society is affected by the increased economic costs of supporting health care and community services that may be required, and poor health is known to predict higher rates of unemployment and reduced social participation.<sup>46</sup> These

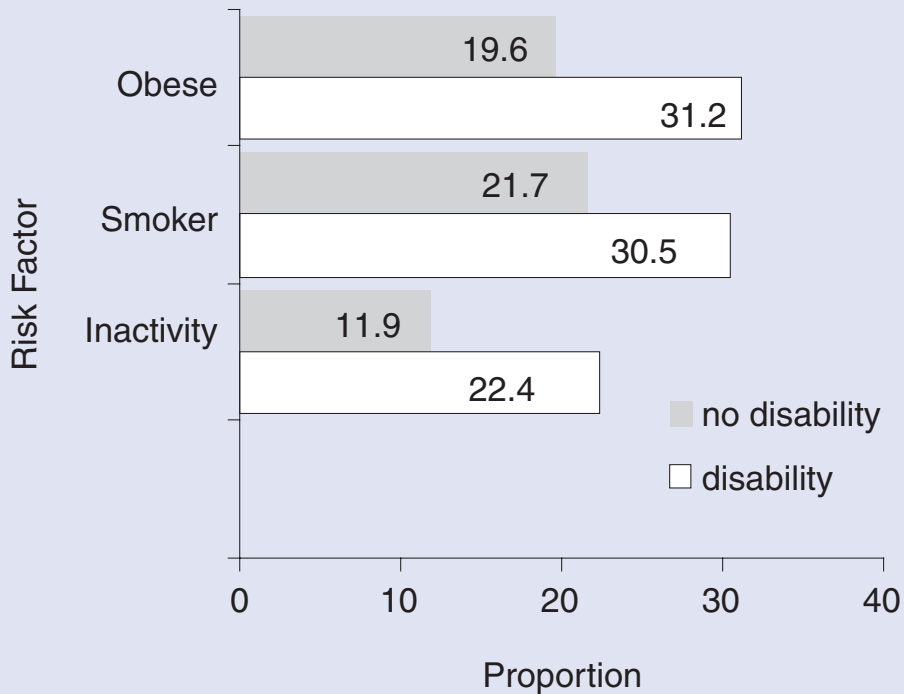
**Figure 1.**

Self-reported health status between people with and without disabilities from the 2001 and 2003 Behavioral Risk Factor Surveillance System.



**Figure 2.**

Health risk behaviors and health status between people with and without from the 2001 and 2003 Behavioral Risk Factor Surveillance System.



health disparities send a strong message that people with disabilities must be a key target population for broad public health interventions in smoking, obesity, exercise, and other health behaviors.

### Barriers to Health Promotion Experienced by People With Disabilities

The creation of universally designed accessible environments that promote independence and community participation among people with disabilities is a critical area of health promotion for this population.<sup>19,22,47,48</sup> Some experts believe that disability is not inherent in the individual but rather the interaction between the individual and his or her environment.<sup>22,25,49</sup> Many different types of inaccessible environments to participating in health-promoting activities by people with disabilities are compounded by architectural, programmatic, and attitudinal barriers.<sup>50</sup> Secondary conditions are exacerbated by environmental barriers that discourage or prevent participation in health promotion activities and present a substantial challenge in altering the built environment for improving access to health-enhancing community activities.<sup>22</sup>

The Americans With Disabilities Act (ADA) provides the legal foundation for ensuring the accessibility of community health promotion programs.<sup>51</sup> Unfortunately, most of these programs are not targeted to the specific needs of people with disabilities, and many people with disabilities do not feel welcome at these facilities.<sup>50</sup> Despite progress in universal design principles and policies, people with disabilities continue to face an enormous array of barriers to participating in self-managed health promotion programs.<sup>34,52</sup> Structures such as parks, recreation and fitness facilities, grocery stores, and health care facilities are often inaccessible to people with disabilities.<sup>22,48,50,53,54</sup> In the government report *Surgeon General's Call to Action to Improve the Health and Wellness of Persons With Disabilities*,<sup>10</sup> officials noted that more effort must be directed at enhancing the health and well-being of people with disabilities by

eliminating environmental barriers that make it difficult or impossible for them to have equal access to community activities. The *Healthy People 2010* chapter titled "Disability and Secondary Conditions,"<sup>55</sup> suggests that the significantly lower rate of participation among people with disabilities in health promotion may be related to environmental barriers, including architectural barriers, organizational policies and practices, discrimination, and social attitudes, and recommends that public health agencies begin to evaluate which environmental factors enhance or impede participation.

Despite the enormous health benefits that can be attained from regular physical

walking paths are too narrow for a wheelchair user and partner to walk side by side, many communities do not have sidewalks, or the terrain's grade or slope is too steep. Other problems with outdoor environments include unsafe neighborhoods, poor weather making sidewalks slippery or impassable, not having enough benches along a trail for people who need frequent rest periods, poorly designated signage, no accessible bathrooms along a trail or path, and no handicapped parking spaces near a trail.<sup>50</sup>

Environmental barriers to nutrition are also commonly observed in people with disabilities. In the United States, obesity and type 2 diabetes follow a



Health promotion interventions that empower people with disabilities to better manage their health can have a significant impact on health, function, community participation, and quality of life.



activity,<sup>56-58</sup> people with mobility disabilities report much lower levels of physical activity compared with the general population,<sup>59</sup> and inaccessibility of the natural and built environments often limits opportunities to participate in various types of recreation, sport, and leisure physical activity in both indoor and outdoor settings. While the general population has access to outdoor physical activity settings such as neighborhood streets, shopping malls, parks, and walking/jogging paths to perform the most common form of physical activity, walking,<sup>60</sup> access to walking for people with mobility disabilities who have difficulty walking (eg, arthritis, extreme obesity, balance impairments, multiple sclerosis, spinal cord injury, limb loss) or cannot walk (eg, some form of paralysis) is often limited by these inaccessible environments.<sup>50</sup> Some streets do not have curb cuts, damaged sidewalks may create a higher risk of falling, walkways or

socioeconomic gradient, with the highest rates observed among groups with the highest poverty rates and the lowest levels of education.<sup>61-63</sup> Kinne<sup>64</sup> used the term *food deserts* to describe areas in cities where residents without private cars have difficulty accessing supermarkets that have low food prices and wide selections of fresh produce. She found the greatest numbers of food deserts in neighborhoods with the highest concentrations of elderly and disabled individuals. Social isolation, depression, and substance abuse are also associated with poor dietary practices and obesity.<sup>65</sup> These and other characteristics disproportionately affect disabled populations. Weil et al<sup>38</sup> reported that compared with other disabled groups and the general population, individuals with severe lower extremity mobility difficulties had higher percentages of poverty (27% lived in poverty), less education (36% with <12 years), and higher obesity rates and were

less likely to attempt weight loss and less frequently counseled by their physicians about weight loss. Other barriers to eating well among individuals with mobility disabilities include being too tired to cook, the higher cost of nutritious foods, difficulty shopping, and not enough time to shop or prepare food.<sup>66-68</sup> Finally, physiologic changes that accompany many types of injuries that cause mobility impairments greatly diminish caloric requirements,<sup>69</sup> although it is common for many individuals to retain preinjury eating habits and calorie intake, leading to excessive weight gain.<sup>68</sup> Collectively, these characteristics and barriers create an environment that predisposes people with disabilities to a higher prevalence of obesity and poor diet quality.

There are several other health promotion domains in addition to physical activity and nutrition that may contain significant participation barriers for people with disabilities. Table 1 lists 15 of these domains and highlights common health behaviors exhibited by many people without disabilities within each domain. The last column lists common personal or environmental barriers that preclude the same level of participation by people with disabilities.

### Designing Health Promotion Programs for People With Disabilities: Understanding the Context of Secondary, Associated, and Chronic Conditions

People with disabilities are predisposed to, or at risk for, developing 3 sets of health conditions that must be considered in the design and implementation of health promotion programs. Two of these conditions, secondary and associated, are relevant only to people with disabilities, while the third category, chronic conditions, usually referred to in the medical literature as *comorbidities*, affect the general population. The diversity in health conditions observed in people with various levels (ie, severity) and types (ie, physical, cognitive and sensory) of disabilities requires health professionals to

understand the differences between these conditions to develop more effective treatment strategies that consider the effects that one condition (ie, pain) may have on other conditions that the person may be experiencing (ie, obesity, fatigue, type 2 diabetes). Similarly, it is critical to know if a condition such as weakness or fatigue is related to lifestyle factors (ie, physical inactivity) or is directly associated with the disability (ie, multiple sclerosis). Given the importance of various types of health-promoting behaviors in improving health and function, understanding the breadth and scope of each of these conditions is critical for developing successful intervention strategies that complement rather than impede or delay progress.

### Secondary Conditions

Since the first definition of *secondary conditions* by the IOM in 1991,<sup>49</sup> several investigators have used the term within a similar framework to describe conditions directly or indirectly associated with a disability and considered preventable.<sup>70-71,73-74</sup> The term grew out of a need to describe conditions that were related to a primary disability or had a substantially higher prevalence in people with disabilities compared with the general population. Since the IOM publication, several federal agencies<sup>28,46</sup> have recommended that one of the major goals of health promotion for people with disabilities is to prevent or minimize secondary conditions. In a report by the IOM,<sup>7</sup> *Workshop on Disability in America*, secondary conditions were recognized as a major limiting factor in the promotion of good health, independence, and social integration among people with disabilities. One major recommendation from that report was the need for rehabilitation professionals and health experts to direct more attention toward secondary condition prevention in people with disabilities. This was reemphasized in the new IOM report titled *The Future of Disability in America*,<sup>22</sup> in which recommendations were made to expand the knowledge base about secondary conditions and aging with a disability so that professionals and consumers have a better understanding of how these conditions affect overall health.

There is still some debate as to whether socially related health conditions such as social isolation, lack of access to adequate medical care, or unemployment should be considered secondary conditions. The *Healthy People 2010* report defines secondary conditions more broadly and does recognize that a secondary condition can be physical, psychological, or social: "Secondary conditions are medical, social, emotional, family, or community problems that a person with a primary disabling condition likely experiences." In the same way that more medically related secondary conditions are a direct result of the impairments associated with the primary disability, some professionals suggest that secondary conditions can occur as a result of some barrier or set of barriers in the person's environment (ie, social isolation caused by limitations in access to the built and natural environment).<sup>1,29,31,35,71,74-76</sup> The underlying concept is that secondary conditions are either preventable or can be mitigated by using various types of health-promoting behaviors, using various types of assistive technologies, or providing more enabling environments.

### Associated Conditions

Associated conditions are certain aspects or features of the disability and are a direct result of the primary disability.<sup>22</sup> While they are not necessarily preventable, in some cases they can be better controlled or managed to avoid further complications. Examples of associated conditions include seizures, spasticity, incontinence, emotional lability, aphasia, gastrointestinal disorders, visual impairments, autonomic dysfunction, hydrocephalus, and many others. These conditions are often managed with medication, medical devices, cognitive or behavioral therapy, or assistive technologies. Specific examples associated with various disabilities include seizures in persons with cerebral palsy, aphasia in individuals with stroke, autonomic dysfunction in persons with spinal cord injury, hydrocephalus in persons with spina bifida, and visual disturbances in individuals with multiple sclerosis. The primary difference between

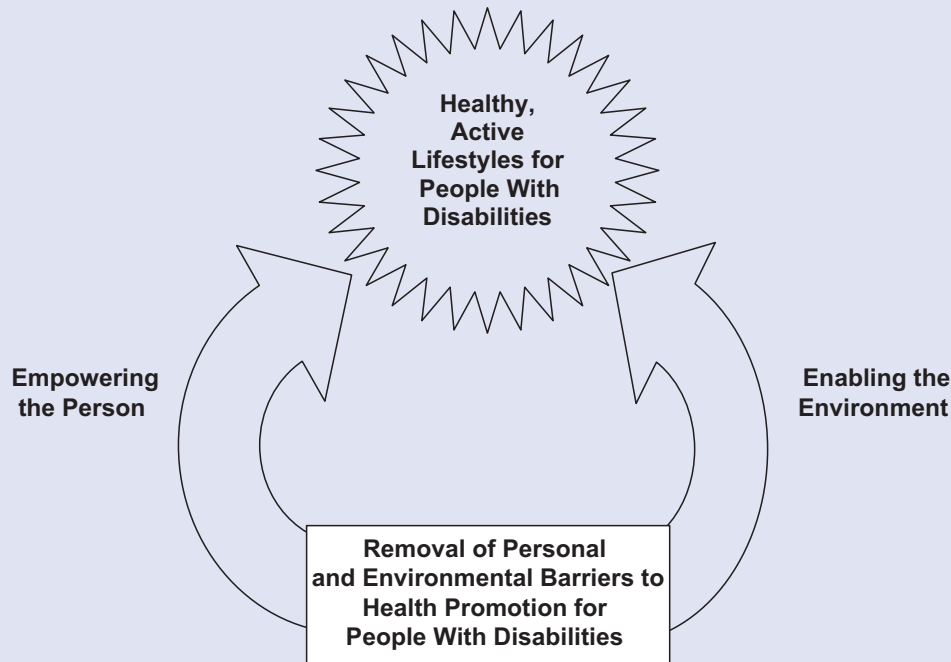
**Table 1.**

Health Promotion Domains That Can Be Inaccessible to People With Disabilities

Health Domain	General Population	Barriers to People With Disabilities
Exercise	Walking is the most common public health recommendation for physical activity Access to all areas of fitness facility	Inability to walk or difficulty walking because of painful joints (ie, hip pain) Minimal access to certain areas of fitness facility
Nutrition	Choice in eating certain types of foods Obtaining certain nutrients through consumption of vitamins and nutritious types of foods	Lack of dexterity or strength make it difficult to open certain bottles or jars Limited income or gastrointestinal impairment prevent certain foods from being purchased or consumed
Sleep	Regular sleep not affected by secondary conditions associated with a disability	Associated (eg, spasms, incontinence) and secondary conditions (eg, depression, severe obesity) may adversely affect sleep patterns Painful joints may decrease ability to sleep in certain positions and may detract from restful sleep
Social relationships	Accessible and convenient transportation Strong social skills	Lack of accessible transportation Difficulty forming social relationships because of limited social contacts
Relationships with family members	Relationships between family members grow independently	Financial and/or physical dependence on 1 or more family members strains relationships.
Employment	Enjoyable and engaging work Freedom to choose various work settings or change jobs often	Limited opportunities to work Limited work settings available due to functional limitations
Substances	Accessible smoking cessation programs	Materials used in smoking cessation program inaccessible to people with cognitive disabilities or low reading levels
Medications	Limited number of medications used to manage health	Multiple medications lead to further health problems (ie, obesity) and higher risk of overmedication
Hygiene	Simple remedies to maintain good hygiene	Incontinence increases complexity in maintaining good hygiene (ie, odor, skin irritation, increased pressure sore risk)
Spirituality	Easy access to materials used in places of worship	No sign language interpreter available during service
Self-efficacy	Opportunities for personal growth enhance self-efficacy	Attitudinal barriers (ie, low expectations) reduce self-efficacy
Sexuality	Common forms of sexual intimacy	Lack of knowledge by health care provider on modifications in sexual intimacy
Stress	Managed through other forms of health behaviors such as exercise and proper nutrition	Limited opportunities to use other forms of health promotion to manage stress
Continued learning throughout the life span	Opportunities to continue lifelong education through various work-related continuing education incentives	Limited opportunities to work results in minimal educational growth
Medical care access	Accessible medical care facilities and affordable health care plans	Limited medical facility access (ie, physician offices, equipment such as examination tables, mammography machines) Low employment rate may reduce quality health insurance

**Figure 3.**

Health promotion program dyad for people with disabilities: empowering the person and enabling the environment.



secondary and associated conditions is the preventable nature of secondary conditions, whereas associated conditions are inextricable from the disease or disablement process.

### Chronic Conditions

While secondary and associated conditions are a direct consequence of a disability, chronic conditions affect the general population and are usually related to lifestyle and/or environmental factors. Common chronic conditions include hypertension, heart disease, hyperlipidemia, cancer, arthritis, type 2 diabetes, and asthma. People with disabilities may be more susceptible to these conditions because of alterations in lifestyle (eg, increased levels of physical inactivity, weight gain, lack of access to appropriate medical care) related to their disability and/or living arrangement. In some instances, an individual may have been diagnosed with a chronic condition (ie, heart disease, hypertension) before acquiring his or her disability.

### A Framework for Improving Health and Reducing Secondary Conditions Among People With Disabilities

A number of short-term studies have demonstrated the beneficial effects of health promotion interventions for people with disabilities.<sup>17,23,29,32,35,77-80</sup> However, most of these interventions were designed in controlled settings to maintain the integrity of the research. A common problem with many health promotion interventions is that their transfer into generic community settings often does not occur because the same level of attention to specific issues associated with the person's disability and/or inaccessible environment is unavailable.

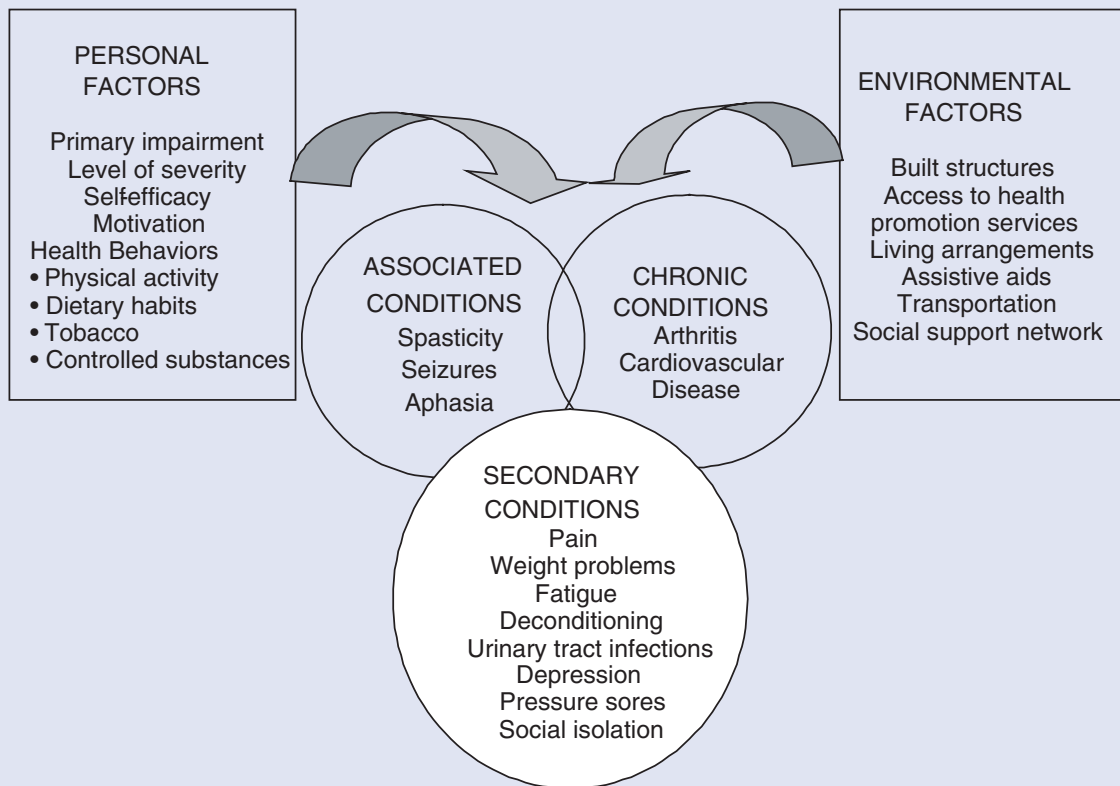
Figure 3 provides a conceptual framework for designing health promotion programs for people with disabilities emphasizing both personal (empowering the person) and environmental (enabling the environment) factors. The critical nature of this dyad is that both sides

must be addressed to achieve optimal health outcomes. For example, a person can be highly responsive to a health promotion intervention (ie, strong personal interest and motivation) but not have an accessible fitness facility near his or her home. Alternatively, an environment may be considered disability friendly, but the person's low exercise self-efficacy or motivational level may reduce his or her participation in the program. To achieve the best outcomes possible, both personal and environmental barriers (illustrated at the bottom of Figure 3) must be eliminated to facilitate higher levels of participation in various types of community-based health promotion programs. Improving one side of the model may have limited or no utility if barriers on the other side are not simultaneously addressed.

Figure 4 presents a contextual model of health promotion for people with disabilities that is composed of 5 key areas. Two primary contributors to the state of health for people with disabilities are (1) personal factors and (2) environmental factors.

**Figure 4.**

Conceptual delivery model of health promotion for people with disabilities.



Personal factors may include the individual's primary impairment and health behaviors such as physical activity and nutrition intake. Environmental factors include built environment accessibility (ie, curb cuts that may impede the ability to travel from one street to the next) or social support and family structures that may be barriers or facilitators to good health. At the bottom of Figure 4 are 3 overlapping circles reflecting the interrelated nature of secondary, associated, and chronic conditions. Although these conditions may be interrelated, they may also represent separate states of health independent of each other.

### Empowerment Health

The key feature of empowerment health is to teach individuals with disabilities their rights as a consumer and how they can play an active role in achieving greater access to the health promotion programs and services offered in their community.<sup>81-83</sup> Empowerment health

for people with disabilities includes 3 general sets of tasks: (1) management of associated conditions (eg, taking medication regularly to control spasticity), (2) reducing or preventing secondary and chronic conditions by engaging in certain health behaviors (eg, increased physical activity), and (3) eliminating environmental barriers that limit access to participation (eg, arranging transportation).<sup>84</sup> These 3 essential features require the collective efforts of the individual, the health provider, and the community at large to ensure that programs and services are accessible to people with disabilities.

Health promotion interventions that empower people with disabilities to better manage their health can have a significant impact on health, function, community participation, and quality of life.<sup>30,35</sup> For example, many individuals with physical disabilities express pain as a major secondary condition.<sup>85</sup> An effective program would provide the person

with the knowledge and skills necessary to safely and effectively develop a pain management program that meets his or her needs, possibly through a program that includes medications, appropriate seating and posture, exercise, and relaxation techniques. Table 2 provides examples of possible solutions to health promotion barriers within the context of empowering the person and/or enabling the environment.

A central feature of empowerment health is its basis in individually perceived problems, and it focuses on helping the person overcome barriers by developing problem-solving skills rather than providing formulated solutions or simply offering assistance from a health care provider. By teaching the individual effective strategies for resolving problems or overcoming barriers, empowerment health seeks to increase the person's self-efficacy, which gives the individual a sense of being able to successfully

**Table 2.**

Empowering the Person and Enabling the Environment: Solutions for Overcoming Health Promotion Barriers

Health Domain	Empowering the Person	Enabling the Environment
Exercise	Seek accessible fitness centers for wheelchair users	Universal design and equipment modifications (ie, adjust height of equipment to accommodate limited range of motion in hips or knees)
Nutrition	Education of acceptable and healthy alternatives to expensive or intolerable food choices Education on availability of assistive devices to perform grocery shopping	Residential facility staff education for healthy food choices when ordering and preparing food Availability of healthy foods in grocery stores; accessibility of these foods both financially and structurally (ie, store shelves and food positioning)
Sleep	Increase understanding of medications to treat symptoms Implement scheduled nighttime bathroom visits or limitation on nighttime beverage intake	Create quiet and comfortable environment (ie, temperature, bedding, ability to transfer independently in and out of bed to toilet at night)
Social relationships	Determine activities of interest and seek participation where others with similar interests may attend	Find accessible public transportation routes or schedule individual pick-up times
Relationships with family members	Self-direct own care through personal assistant Educate person about limitations associated with certain conditions (ie, person with rheumatoid arthritis may have increased pain during the morning, so schedule outings later in the day)	Determine living relationships that minimize conflict and that are convenient for all
Employment	Seek specialized training in field of interest	Determine best fit for accommodating workplace environment based on interests and job skills Design work space to accommodate limitations due to pain or lack of range of motion
Substances	Educate program leaders on ways to make their materials accessible in content and format	Create and distribute accessible materials (ie, large print, audio, Braille) in various community locations
Medications	Inform physician of medication side effects	Increased awareness of medication side effects with clear labeling
Hygiene	Set bladder evacuation schedule or coordinate with caregiver to minimize incontinent episodes Use assistive devices (ie, long-handled sponges) to reach difficult areas for washing	Ensure accessible cleansing equipment is available and that individual or caregiver is knowledgeable about use of this equipment/device(s)
Spirituality	Locate accessible places of worship (building entrances, congregation halls)	Educate staff in places of worship on how to make materials more accessible (ie, reading levels, print size)
Self-efficacy	Empowerment through increased access to community and programs of interest	Positive support from staff
Sexuality	Education through social contacts or consumer literature	Access to consumer literature products
Stress	Schedule time in the morning to stretch and meditate using video designed for performing activities in wheelchair	Accessible buildings to healthy services locations (fitness centers, grocery stores, spas)
Continued learning throughout the life span	Seek access to local independent living centers to determine educational opportunities regarding work and health	Improvement in structured/regular communication with independent living centers
Medical care access	Educate medical office staff on ways to make building and equipment more accessible Investigate health care plan options with independent living centers and disability rights organizations	Improve wheelchair access to health care provider offices Access to adjustable height examination tables and other diagnostic equipment

resolve challenges that arise in the course of managing his or her health.<sup>22,34,86-88</sup> It should provide the individual with a sense of assurance that access to health promotion programs are a right and not a privilege and that programs, facilities, and services available and accessible to the general community should be accessible to all persons with disabilities.

### Enabling Environments

Throughout history, built social and cultural environments have been created for people without disabilities. It is important for health professionals and public policy makers to recognize that accessible, disability-friendly communities are considered to be part of the ADA. According to Meyers et al,<sup>89</sup> despite passage of the ADA in 1990, access remains an elusive goal and an unkept promise. In addition to the critical need to increase access to the built environment, there is also a tremendous need for more training programs that promote disability awareness and sensitivity, and reduce attitudinal barriers.

The lack of disability-related content in most professional training programs is an enormous problem for providing accessible and effective programs for people with disabilities. One important approach to enabling environments is to include content in health professional training programs that address the needs of people with disabilities. Using person-first terminology, treating all individuals with dignity, and maintaining respect for individual differences are critical for making people with disabilities feel more comfortable in various health promotion settings. Similarly, informing professionals about universally designed products will also help to make facilities structurally more accessible and disability friendly. More and more products are being manufactured using common universal design principles that provide access for a broader group of individuals with disabilities, including accessible medical equipment (ie, examination tables) and exercise products (universally designed exercise equipment). Simpler solutions for enabling environments for people with disabilities include better lighting,

larger font sizes on various signage, and rails or steps for hard-to-reach items.

Accessible transportation to get to a fitness or medical facility can be a formidable barrier for many individuals with disabilities.<sup>22,90</sup> Creating accessible transportation options for people with disabilities will result in greater access to health promotion services offered in the community. This access could have a substantial impact on improving health and reducing the risk of secondary and chronic conditions.

### Conclusion

It is important for health professionals and service providers to recognize the different personal and environmental factors that may enhance or impede participation in health promotion activities among people with disabilities. A truly enabling environment is one in which health promotion programs and services are as accessible to people with disabilities as they are to people without disabilities. Health professionals must also recognize that several personal and environmental barriers not typically reported in the general population (ie, transportation difficulties, inaccessible buildings or structures, lack of staff knowledge on certain accommodations that are needed for managing physical, cognitive, or sensory impairments, etc) are likely to have a negative impact on the person's ability to successfully participate in various kinds of individual and group health promotion activities.

Health promotion for people with disabilities must consist of the following dyad: (1) empowering individuals to self-manage their own health and (2) promoting disability-friendly (enabling) environments that support good health promotion practices in the home, work, and community settings. Within this framework, health promotion programs and services should focus on 3 key areas: (1) reduction or prevention of secondary conditions, (2) improvements in functional health that will allow the person to maintain optimum levels of independence and participation in community activities,

and (3) increased access to natural, built, and social environments.

Health promotion has become an important goal in public health and public policy, and reducing health disparities among people with disabilities must be a critical part of this agenda.<sup>10,40</sup> Public health practitioners, health care providers, community organizations, and federal agencies must work together to improve access for people with disabilities to the tens of thousands of community-based health promotion programs offered throughout the United States and the world. **AJLM**

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