From the Paralympics to Public Health: Increasing Physical Activity Through Legislative and Policy Initiatives

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Individuals with disabilities experience a disproportionate rate of chronic disease and are more likely to lead sedentary lifestyles than the general population. Multiple complex factors likely contribute to these disparities, including structural, socioeconomic and attitudinal barriers that impede broad participation of individuals with disabilities in health and wellness promotion programs. Public health initiatives aimed at mitigating these health disparities emphasize improved access to physical activity and sports opportunities. Given its visibility, the Paralympic Movement provides an opportunity to transform how society conceptualizes the relationship of disability to physical fitness. The Paralympics also serve as a catalyst for public health education and program development. Already, public policies and governmental regulations are expanding grassroots sports opportunities for youth and adults with disabilities, thus promoting inclusive opportunities for participation in physical activity.

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INTRODUCTION

Being physically active offers well-recognized benefits to physical and mental health. Options for physical activity are wide-ranging, and include activities such as individual exercise routines, incorporating physical activity into daily life (eg, cycling to work), recreational individual or team sports, and professional or elite athletic competitions. Across this wide spectrum, access to safe and supportive settings for physical activity is recognized as an important public health issue. Youth who lack access to safe play areas and sport opportunities may be at increased risk for childhood obesity [1]. In addition, sports offer important platforms for emotional and social development through which children learn how to set goals and work in teams [2]. For adults, safe and welcoming environments even for walking, let alone more intensive exercise, are critical to promote physical activity. Access to sports opportunities and being physically active are mainstays of health and community involvement [3].

In Healthy People 2020, the United States (U.S.) Department of Health and Human Services outlined evidence-based, 10-year objectives aimed at improving the health of all Americans, explicitly including individuals with disabilities [4]. In defining these priorities, it was noted that people with disabilities are more likely than other individuals to be overweight or obese, have high blood pressure, use tobacco, and receive less social-emotional support, among other health disadvantages [4]. In response, including people with an impairment in health promotion activities, with a focus on physical activity, is a key area for public health action.

In this review, we do the following: (1) give a brief overview of health disparities for individuals with disabilities; (2) outline the public health response aimed at addressing these disparities, particularly as related to sport and physical activity; and (3) review relevant public policy initiatives designed to increase community-based access to sport and fitness opportunities. We focus on issues and perspectives of the United States, recognizing that adequately considering international perspectives is beyond the scope of what can be presented here. Social, cultural, and environmental factors significantly affect the physical

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activity opportunities and practices of individuals with disabilities in different countries [5].

DISABILITY AND HEALTH DISPARITIES

Estimates from 2010 data suggest that approximately 56.7 million civilian, noninstitutionalized Americans, or 18.7% of the population, are living with disabilities [6]. These large estimates underscore the heterogeneity of this population. The absolute numbers of U.S. residents with disabilities is growing, with disability rates increasing across the lifespan. Tiny infants and children with complex health conditions are now surviving into adolescence and adulthood, albeit often with significant impairments. Disability rates rise dramatically with age because of the cumulative effects of medical and musculoskeletal conditions. At older ages, deficits in mobility are a leading cause of disability [7]. At all ages, different factors contribute to disability, including physical functional impairments, sensory difficulties (eg, vision and/or hearing deficits), mental and emotional health concerns, and cognitive impairments. All of these various contributors to disability have the potential to affect an individual's ability to engage in routine physical activity.

Individuals with disabilities are more frequently affected by what public health experts refer to as the "social and environmental determinants of health." These include low educational attainment, high poverty rates, low employment rates, suboptimal housing, and discriminatory societal attitudes. These types of factors cause anxiety and stress, with specific physiological responses that are increasingly recognized as compromising health, increasing the risk of acquiring chronic conditions, and shortening longevity [8,9]. In addition, environmental and societal barriers, often more prevalent in resource-poor settings, exacerbate disability by decreasing an individual's ability to participate in the community.

It is beyond the scope of this article to present an exhaustive review of health disparities between people with and without disability. Instead, we highlight several prominent concerns, starting with overweight and obesity (Table 1). For each of these conditions, the causal links can be complicated and difficult to unravel.

Across disability types, individuals with disabilities are more at risk for becoming overweight or obese. Data from the 2001-2005 National Health Interview Surveys indicate a higher prevalence of obesity in individuals with disabilities as compared to those without disabilities (28.4% compared to 17.8% for ages 18-44 and 36.2% compared to 21.5% for ages 45-64) [10]. Prior studies reveal that adults with moderate to severe lower extremity mobility difficulties are particularly at risk for obesity; furthermore, physicians are less likely to counsel adults with either upper or lower extremity impairment on the importance of exercise [11]. In addition, adults with intellectual disability living in both independent and supervised settings are known to have a higher prevalence of obesity and morbid obesity when compared to the general population, which is thought to be largely due to environmental factors [12].

Another important concern involves cardiovascular health, such as hypertension, hyperlipidemia, and coronary artery disease. These conditions are also known to disproportionately affect individuals with functional impairments. In a cross-disability study, Froehlich et al showed that obese individuals with disabilities were more likely than obese individuals without a disability to have elevated blood pressure, high total cholesterol, and low HDL cholesterol [13]. Cardiovascular disease is a leading cause of morbidity and mortality after spinal cord injury (SCI) [14], and individuals with SCI have lower HDL cholesterol values than the general population [15]. Cardiovascular disease itself often leads to significant disability and functional decline. For example,

Table 1. *Obesity and health behaviors for adults with and without disability: United States 2001-2005*

	No Disability	Movement Difficulty	Emotional Difficulty	Seeing or Hearing Difficulty	Cognitive Difficulty
Body mass index					
Underweight (%)*	1.4	1.3	†	1.3	†
Healthy weight	42.8	30.0	34.5	35.6	39.3
Overweight	37.1	35.4	30.7	36.0	31.4
Obese	18.7	33.4	33.0	27.1	27.2
Leisure time physical activity					
Unable to do (%)*	0.1	7.8	8.9	5.9	12.9
Inactive	32.8	43.8	48.6	39.3	53.6
Some	32.2	30.6	25.2	31.2	23.4
Regular	34.8	17.7	17.2	23.6	10.1
Cigarette smoking					
Current smoker (%)*	20.4	23.9	43.0	23.3	26.7
Not current smoker	79.6	72.7	57.1	76.1	73.3

Source: CDC/NCHS, National Health Interview Survey.

*All values are percentage of individuals with either no disability or a specific category of disability, as specified.

†Figure does not meet standards of reliability or precision.

Adapted from reference 10.