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Universal Accessibility of "Accessible" Fitness and Recreational Facilities for Persons With Mobility Disabilities

Kelly P. Arbour-Nicitopoulos and Kathleen A. Martin Ginis
McMaster University

This study descriptively measured the universal accessibility of "accessible" fitness and recreational facilities for Ontarians living with mobility disabilities. The physical and social environments of 44 fitness and recreational facilities that identified as "accessible" were assessed using a modified version of the AIMFREE. None of the 44 facilities were completely accessible. Mean accessibility ratings ranged between 31 and 63 out of a possible 100. Overall, recreational facilities had higher accessibility scores than fitness centers, with significant differences found on professional support and training, entrance areas, and parking lot. A modest correlation was found between the availability of fitness programming and the overall accessibility of fitness-center specific facility areas. Overall, the physical and social environments of the 44 fitness and recreational facilities assessed were limited in their accessibility for persons with mobility disabilities. Future efforts should be directed at establishing and meeting universal accessibility guidelines for Canadian physical activity facilities.

Keywords: facility access, disability, physical activity

Active living and inclusion in all aspects of society are national priorities, particularly among persons with disabilities (Active Living Alliance for Canadians with a Disability, ALACD, 2005; U.S. Department of Health and Human Services, 2000). Organizations such as the Active Living Alliance for Canadians with Disabilities (ALACD; 2005) and the National Center on Physical Activity and Disability (NCPAD; 2008) have been created to help persons with disabilities lead active, healthy lifestyles by providing equal access to physical activity opportunities for persons of all abilities. The ultimate goal of these organizations is to create physical activity environments and opportunities that are designed in such a way that they not only meet the minimum universal accessibility standards (Skulski, 2007), but are also functional and usable by persons with disabilities (Goldman, 1991).

Universal accessibility is conceptualized as a "philosophy" that describes access, both structural and attitudinal, through the elimination of obstacles and creating

Kelly Arbour-Nicitopoulos and Kathleen Martin Ginis are with the Department of Kinesiology, Centre for Health Promotion and Rehabilitation at McMaster University in Hamilton, ON, Canada.

environments that are functional for all potential users ("barrier-free design"; Bérubé, 1981; Jones & Tamari, 1997). Universal accessibility is fundamental to inclusion; an accessible environment provides all individuals with a sense of independence, competence, and autonomy to use all areas of an environment, as well as to participate actively with friends and family (ALACD, 2008). In the context of the current study, the structural and attitudinal environments of fitness and recreational facilities were examined for individuals living with mobility impairments, such as spinal cord injury or cerebral palsy.

Earlier studies that have examined the universal accessibility of recreational and fitness facilities have used modified checklists of the Americans with Disabilities Act (ADA; 1991) and the Americans with Disabilities Act Accessibility Guidelines (ADAAG; U.S. Access Board, 2002) that primarily focus on the structural environment of the facilities (e.g., widths of access aisles and doorways, spacing between exercise equipment), with a limited emphasis on the social environment (e.g., staff knowledge, programming; Cardinal & Spaziani, 2003; Nary, Froehlich, & White, 2000). In a recent Canadian study (Hawes, 2001), a combination of a provincial building code accessibility checklist and an attitudes survey was used to assess both the physical and social environment of fitness and recreational facilities. No information was provided on the measurement properties of these two instruments. Hence, it is unknown whether these instruments are valid and reliable measures for assessing the universal accessibility of fitness and recreational facilities for persons with disabilities.

Recently, Rimmer et al. (Rimmer, Riley, Wang, & Rauworth, 2004, 2005) developed the Accessibility Instruments Measuring Fitness and Recreation Environments (AIMFREE). The AIMFREE items were derived from focus group discussions conducted with various individuals from the disability, fitness, and recreational communities (e.g., persons with disabilities, architects, city planners, fitness professionals), as well as from the ADAAG (U.S. Access Board, 2002). The AIMFREE consists of 16 subscales, divided into six accessibility-related areas: built environment, equipment, facility information, policies, professional behavior, and swimming pool. Internal consistency of the subscales has ranged from 0.0 to 0.89, with 8 of the 16 subscales (swimming pool, professional behavior, policies, equipment, information, bathroom, professional support and training, elevators) demonstrating adequate to good internal consistency. All but two of the 16 subscales (parking lot, fitness program) have exhibited evidence of unidimensionality (Rimmer et al., 2004). Test-retest reliability over a 2-week period for the AIMFREE subscales not requiring input from facility staff showed intraclass correlations between 0.70 (access routes) to 0.97 (swimming pools). The AIMFREE has been validated using the Rasch measurement model (Rimmer et al., 2004; see Bond & Fox, 2007 and Rasch, 1960 for a detailed description of the Rasch model). Overall, the AIMFREE has been found to be a reliable and valid assessment tool that both researchers and consumers can use to examine the universal accessibility of fitness and recreational facilities for use by persons with disabilities. For the current study, the AIMFREE was used to assess the universal accessibility of fitness and recreational facilities in a midsize city in Ontario, Canada.

To date, research suggests that even "accessible" recreational and fitness facilities are not fully compliant with established accessibility guidelines, such as the ADAAG (U.S. Access Board, 2002), with structural- and equipment-related

barriers representing the largest proportion of the total environmental barriers (Cardinal & Spaziani, 2003; Hawes, 2001; Nary et al., 2000; Rimmer et al., 2005). As well, a facility's social environment, such as staff knowledge, may influence physical activity participation for persons with disabilities (Hawes, 2001; Nary et al., 2000; Riley, Rimmer, Wang, & Schiller, 2008; Rimmer, 1999). However, of the few studies that have examined the social environment of recreational and fitness facilities, no two have used the same accessibility measure (e.g., Hawes, 2001; Nary et al., 2000; Rimmer et al., 2005), which makes it difficult to make any cross-study comparisons. In one unpublished report on the universal accessibility of Ontario recreational and fitness facilities (Hawes, 2001), it was found that municipal recreational facilities had better accessibility scores than not-for-profit and commercial fitness facilities on the majority of measured structural- and equipment-related items, suggesting that universal accessibility may vary across the two types of facilities. The projected importance of these establishments on the promotion of health and participation opportunities for persons with disabilities (c.f., Rimmer, 1999), suggests greater attention is warranted to assess the universal accessibility of fitness and recreational facilities.

Given these issues, the current study examined three research questions: (a) What is the universal accessibility of fitness and recreational facilities that identified as being "accessible" for persons with mobility disabilities? (b) Do recreational and fitness facilities differ on their universal accessibility? and (c) Is there a relationship between universal accessibility and the availability of programming for persons with disabilities? Based on previous research (Hawes, 2001), it was hypothesized that universal accessibility ratings would be higher (i.e., more favorable) for the recreational facilities in comparison with the fitness facilities. In addition, we hypothesized a positive relationship between universal accessibility and the availability of programming for persons with disabilities, such that higher ratings on the general accessibility subscales (e.g., parking lot, bathroom), and fitness center-specific accessibility categories (e.g., locker room, professional support and training) would be related to more accessible programs available to persons with disabilities.

Method

Facilities

Fifty-six fitness (21 private for-profit health clubs, 5 public nonprofit health clubs) and recreational (30 publicly funded facilities, 14 of which were community pools) centers within the midsize city were identified, either through personal communication with the manager or web-based advertisements, as facilities that provide physical activity programming and/or equipment for persons with disabilities. The two facility types differed as a function of ownership, with fitness facilities belonging to either a not-for-profit (e.g., YMCA) or commercial sector organization (e.g., health clubs), while recreational facilities belonged to the municipal sector, e.g., community centers that provided infrastructure (pools, gymnasiums) and programs (swimming, yoga, basketball) for residents to participate in physical activity.

In terms of population demographics, the target city is a midsized urban center, with a population of 504,559 (population density of 451 per square kilometre) and a median gross income of $66,810. Approximately 82% of the population is over the

age of 15 (Statistics Canada, 2006). According to the 2001 Participation and Activity Limitation Survey (PALS; Statistics Canada, 2003), 91, 440 of the residents (18.6% of the population) reported living with one or more disability, which was slightly higher than the provincial (13.5%) and national (12.4%) prevalence of disability.

Measures

Demographic information was collected on the type of facility (e.g., fitness center), date of establishment, location (e.g., urban), target members (e.g., family), and whether the facility had undergone any accessibility-related changes ≤ 10 years ago.

Universal Accessibility was assessed using a modified version of the Accessibility Instruments Measuring Fitness and Recreational Environments (AIMFREE; Rimmer et al., 2004, 2005) that included 10 of the original 16 subscales, divided into five accessibility-related areas: built environment, equipment, policies, professional behavior, and swimming pool. Given the length of the AIMFREE instrument, the items pertaining to hot tubs/saunas and signage/facility information were omitted from the current study to maintain the brevity of the assessments. Items pertaining to telephones were also omitted because these items were more appropriate for examining the accessibility needs of persons with visual impairments, than for persons with mobility disabilities, which was the primary population of interest. Given the focus of the professional behavior subscale on objective assessments of staff behavior toward individuals with disabilities (e.g., Was staff willing to assist customers?), the subscale was omitted because it was difficult to ensure that each facility would have at least one person with a disability using the facility during the assessment. Finally, no meaningful scoring system could be created by the original authors for the water fountain subscale (Rimmer et al., 2004); hence, this subscale was excluded from the analyses. Possible responses to each of the items were *Yes*, *No*, or *Not Applicable*.

The AIMFREE subscales can be further organized into two categories: general and fitness center-specific accessibility (see Table 1; Rimmer et al., 2004). The general accessibility category is a composite measure that encompasses the accessibility of the general layout of the building (e.g., parking lot, bathroom). Meanwhile, the fitness center-specific accessibility category considers the accessibility of the areas associated with the facility's fitness services (e.g., locker room, equipment). These two measures were used to determine the relationship between facility universal accessibility and the availability of fitness programs for persons with disabilities.

Accessibility Scoring

The AIMFREE scoring manual indicates the items for which a *Yes* (e.g., paths around equipment are free from obstacles) vs. a *No* (e.g., bathroom floors are slippery) response suggest greater universal accessibility. A composite raw score is then calculated for each area of a subscale by counting the number of items with responses indicative of greater universal accessibility. Conversion charts are provided within the AIMFREE manual, which display the possible raw scores for each subscale along with a linearly transformed accessibility score, ranging from 0 (low universal accessibility) to 100 (high universal accessibility). These transformed universal accessibility scores were used in the current study.

Table 1 Description of the Measured AIMFREE Subscales

Subscale	# of Items	Description
General Accessibility		
Parking Lot	13	Accessibility of parking lot; access routes between parking lot and facility; dimensions of accessible parking spaces.
Entrance Areas	44	Accessibility of access routes leading to the facility, entrance doorways, and front desk (e.g., width of doorways).
Bathroom	32	Accessibility of bathroom doors, toilet stalls, and sink area.
Elevator	23	Accessibility of elevator entrance, controls, grab bars, audible/visual cues for floor direction and position.
Fitness Center-Specific Accessibility		
Locker Room	39	Accessibility of doorways, locker room area (e.g., paths leading to lockers), and shower area (e.g., presence of grab bars).
Equipment	56	Accessibility of doorways, pathways leading to/around exercise equipment; availability of accessible equipment.
Professional Support and Training	26	Resources and opportunities for training staff in areas relating to working with persons with disabilities (e.g., training manual). Staff members' attitudes toward working with persons with disabilities and their knowledge concerning disabilities and adaptive exercise equipment.
Fitness Program	10	Accessibility of physical activity programs (e.g., aerobics classes).
Policies	53	Availability of policies that endorse the inclusion of persons with disabilities (e.g., mission statement).
Swimming Pool	37	Accessibility of pathways leading to/around the pool; availability of accessible means of pool entry/exit (e.g., pool lift).

Note. For each subscale, higher scores indicate better accessibility. The fitness programming subscale was excluded from all analyses using the Fitness Center-Specific Accessibility category. Adapted from Rimmer et al., 2004.

Evaluators

All assessments were conducted by a trained researcher and the principal investigator. Raters (n = 3) attended two, 3-hr training sessions (led by the principal investigator) to familiarize themselves with the AIMFREE items as well as to establish a specific protocol for measuring the direct observation items (e.g.,

width of doorways, spacing between exercise equipment). Following these two sessions, the three raters and the principal investigator used the AIMFREE to conduct practice assessments, in groups of two, on two designated fitness facilities. Responses of the two groups of raters were tabulated and percentage agreement was calculated on all applicable subscales except those requiring input from staff members (i.e., policies, fitness programs, and professional support and training). Item discrepancies were then discussed until all four raters reached a consensus for the particular item. Two-thirds into data collection, a second interrater agreement test was conducted on a different fitness facility to ensure that no rating drift had occurred (cf., Spivock, Gauvin & Brodeur, 2007). Percent agreement for the three facility assessments ranged from 83.3% to 91.9%.

Procedure

The study was approved by the university's Research Ethics Board. For the screening phase of the study, 88 fitness and recreational facilities within the target city were identified through searches on the Internet, in the Yellow Pages, and the target city's Sports and Recreation directory using keywords *fitness, health clubs,* and *recreational centers*. Of the 88 facilities identified, 56 were staff-acclaimed to provide adaptive equipment and/or programs for persons with disabilities. Next, verbal consent was obtained from the facility manager for an on-site assessment, using the AIMFREE, during daylight hours (9:00 a.m.–7:00 p.m.) from May to September 2007. Total time to conduct each facility assessment was approximately 120 min. Facility managers were sent an electronic report summarizing their facility's AIMFREE scores.

Data Analysis

Chi-square analyses were computed to test for between-facility differences (recreational vs. fitness) on the measured demographic variables. Multiple one-way ANOVAs were conducted to test for between-facility differences on the AIMFREE ratings. Normality tests indicated that the parking lot and entrance area subscales were not normally distributed (significant Levene's tests). Inspection of the data revealed that there was one outlier for the entrance area subscale. Subsequent removal of this fitness facility from the entrance area subscale improved the normality of the data ($p > 0.06$), indicating that the ANOVA could proceed for this subscale ($N = 41$). Meanwhile, for the parking lot subscale, no outliers were revealed. In accordance with Tabachnick and Fidell's (2001) recommendations that "with relatively equal sample sizes in groups, no outliers, and two-tailed tests, robustness is expected with [ANOVA models] with 20 degrees of freedom for error" (p. 80), we proceeded with the ANOVA for the parking lot subscale ($N = 35$).

Separate 1-tailed Spearman correlations were computed between the Fitness Programming subscale and (a) each of the AIMFREE subscales, and (b) the two composite accessibility measures (i.e., general and fitness center-specific). To reduce collinearity, the fitness programming subscale was omitted from the calculation of the fitness center-specific accessibility score.

Results

Facility Demographics

Of the 56 facilities that reported having accessible facilities and/or programs, 44 agreed to participate in the study. Of the 12 facilities that were not assessed, 7 were fitness centers and 5 were recreational centers. Six of the 12 nonassessed facilities were located in urban areas, while the remaining six were located in suburban areas. Reasons for not participating in the study included facility repairs/construction (3 recreational centers), indefinite closure (2 recreational centers), and lack of interest (all 7 fitness centers).

Table 2 shows the demographic characteristics of the 44 facilities included in the analyses. A higher proportion of recreational centers were built before 1999 in comparison with the fitness centers. All recreational centers assessed provided

Table 2 Demographic Characteristics of the Facilities (Overall) and of the Two Facility Types (n, %)

	Overall	Recreational Centers	Fitness Centers	χ^2
Location				0.55
Suburban	19 (43%)	12 (48%)	7 (37%)	
Urban	25 (57%)	13 (52%)	12 (63%)	
Date of Establishment				6.01*
≤ 1999[a]	30 (75%)	22 (88%)	8 (53%)	
≥ 2000	10 (25%)	3 (12%)	7 (47%)	
Target Member				–
Men & Women	10 (23%)	–	10 (53%)	
Women only	5 (11%)	–	5 (26%)	
Family	28 (64%)	25 (100%)	3 (16%)	
Health Promotion/ Disability	1 (2%)	–	1 (5%)	
Accessibility-related changes < 10 years				1.42
Yes	26 (59%)	17 (68%)	9 (47%)	
No	17 (39%)	8 (32%)	9 (47%)	
N/A	1 (2%)	–	1 (5%)	

Note. A chi-square test was not performed for the Target Member category since > 20% of the expected frequencies were below five (Field, 2005). For the accessibility-related changes category, the chi-square test was conducted to examine differences between "Yes" vs. "No" responses only.

[a] $n_{\text{fitness centers}} = 15$

*p < .05

services to all family members, while the majority of the fitness centers endorsed an "adults only" environment. No significant demographic differences were found between the two facility types on location or accessibility-related changes in the past 10 years.

What Is the Universal Accessibility of Recreational and Fitness Facilities That Self-Identify as Being Accessible?

Table 3 provides the mean universal accessibility ratings for the AIMFREE subscales, while Figure 1 displays the ranges, medians, and quartiles for each AIMFREE dimension. Overall, mean universal accessibility ratings ranged from 31.1 to 63.1. Fitness programming was rated the highest, with three of the facilities rating 100% on this subscale. Meanwhile, the subscale pertaining to bathrooms was rated as the least accessible area.

Do Recreational and Fitness Facilities Differ on their Universal Accessibility?

Results indicated significant differences between the two facility types for accessibility of parking lot, entrance area, and professional support and training (ps < .05; see Table 4 for F statistics tests and Figure 2 for the box plots illustrating the ranges, medians, and quartiles of the AIMFREE subscales). Recreational centers had higher accessibility scores on the parking lot and entrance area subscales but lower accessibility scores for professional support and training in comparison with the fitness centers. A trend was also shown for policies (p = 0.07), with higher

Table 3 Mean Universal Accessibility Scores (%) for the Ten AIMFREE Subscales

Subscale	$n_{facility}$	Universal Accessibility Score (%) M ± SD (range)
Parking Lot	35	54.5 ± 13.6 (16.2–73.0)
Entrance Areas	41	51.6 ± 5.4 (34.0–59.1)
Bathroom	42	31.1 ± 5.5 (16.8–45.8)
Locker Room	37	42.2 ± 7.1 (19.6–56.3)
Elevator	7	49.0 ± 4.8 (42.0–54.8)
Equipment	19	47.7 ± 5.3 (40.1–57.9)
Professional Support and Training	34	47.9 ± 11.5 (26.8–85.8)
Fitness Program	35	63.1 ± 18.8 (28.8–100.0)
Policies	38	47.1 ± 5.8 (36.3–57.9)
Swimming Pool	29	37.0 ± 9.1 (16.9–51.4)

Note. Universal accessibility scores are shown as percentages ± SD. Actual score ranges are in parentheses. Higher ratings indicate a greater accessibility score for the respective subscale. Scoring is based on Rimmer et al.'s (2004) linear conversion accessibility scale.

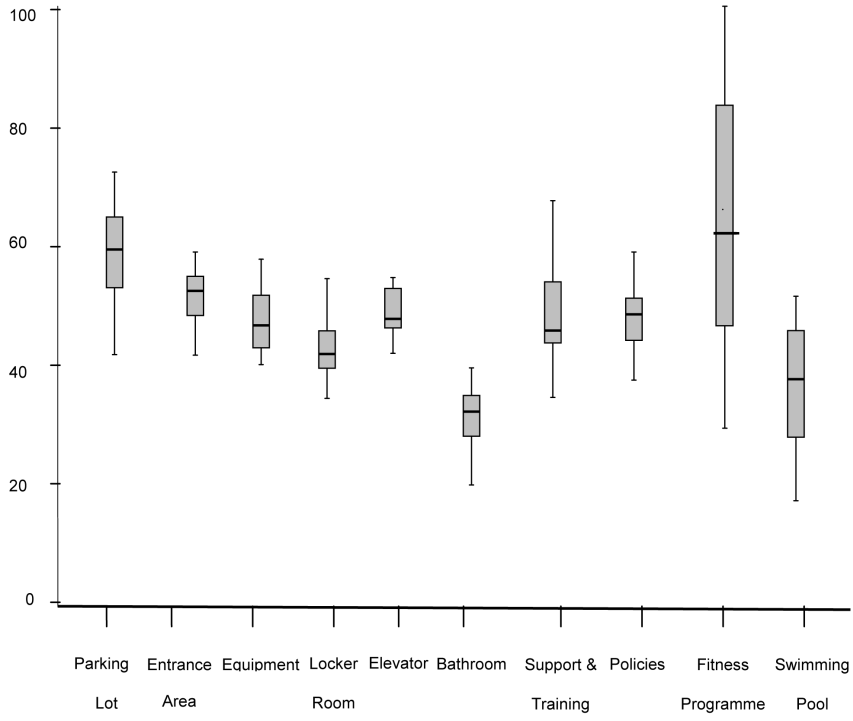

Figure 1 — Box plots of the accessibility ratings of each AIMFREE subscales for the overall sample. Ratings are based on Rimmer et al.'s [11] linear conversion accessibility scale.

accessibility scores shown for recreational centers than fitness centers. No significant differences or trends were found for the bathroom, locker room, elevator, fitness program, and swimming pool subscales (ps > 0.10).

Is There a Relationship Between Fitness Programming Availability and Facility Universal Accessibility?

Small to large (rs = –.09 to 0.70) correlations were found between fitness programming and the AIMFREE subscales, with the strongest relationships shown between fitness programming and elevators ($r = 0.70$, $p = 0.04$), policies ($r = 0.25$, $p = 0.07$), swimming pools ($r = 0.29$, $p = 0.09$), and bathrooms ($r = –.23$, $p = 0.09$). In partial support of our hypothesis, facilities with more accessible elevators, swimming pools, and that had disability-related policies in place, had more accessible fitness programs available to individuals with disabilities. Contrary to hypothesis, facilities with the least accessible bathrooms had more accessible fitness programs available to individuals with disabilities. No other correlations were significant (ps > 0.10).

In terms of the composite accessibility measures, a significant, modest correlation emerged between programming and fitness center-specific accessibility ($r = 0.33$, $p < .03$). No significant relationship was found with the general accessibility measure ($r = –.16$, $p = 0.18$).

Table 4 Means, Standard Deviations, Significance Tests, and Effect Sizes (partial η^2) for the Universal Accessibility of the Two Facility Types

Subscale	Recreational Centers	Fitness Centers	*F* (*partial* η^2)	*df*
Parking Lot	58.4 ± 7.3 (n=22)	47.8 ± 18.9 (n=13)	5.58 (.15)*	1, 33
Entrance Areas	53.0 ± 3.8 (n=25)	49.5 ± 6.8 (n=16)	4.39 (.10) *	1, 39
Bathroom	32.0 ± 5.0 (n=25)	29.7 ± 6.0 (n=17)	1.73 (.04)	1, 40
Locker Room	43.3 ± 7.3 (n=23)	40.2 ± 6.6 (n=14)	1.67 (.02)	1, 35
Elevator	51.3 ± 4.9 (n=2)	48.1 ± 5.1 (n=5)	0.58 (.10)	1, 5
Equipment	–	47.7 ± 5.3 (n=19)	–	–
Professional Support and Training	42.9 ± 7.3 (n=17)	52.9 ± 12.8 (n=17)	7.89 (.20)**	1, 32
Fitness Program	59.9 ± 18.3 (n=19)	67.0 ± 19.2 (n=16)	1.25 (.04)	1, 33
Policies	48.6 ± 5.1 (n=21)	45.2 ± 6.1 (n=17)	3.46 (.09)†	1, 36
Swimming Pool	36.4 ± 9.0 (n=23)	39.0 ± 10.1 (n=6)	0.36 (.01)	1, 27

Note. Universal accessibility scores are shown as percentages. n = number of facilities that were assessed for the particular AIMFREE subscale. Higher ratings indicate a greater accessibility score for the respective subscale. Scoring is based on Rimmer et al.'s (2004) linear conversion accessibility scale.

**p < .01, *p < .05, † p < .10

Discussion

What Is the Universal Accessibility of Recreational and Fitness Facilities That Self-Identify as Being Accessible?

The 44 fitness and recreational facilities received relatively low overall universal accessibility ratings, with the highest ratings shown for the fitness program, parking lot, and entrance area subscales. The lowest accessibility ratings were shown for the bathroom, swimming pool, and locker room subscales. None of the facilities scored 100 on all the AIMFREE subscales, although three facilities received a 100 accessible rating for fitness programming. Taken together, these results suggest that fitness and recreational facilities that self-identify as being accessible are actually quite limited in their accessibility for persons with mobility disabilities.

Despite the low universal accessibility ratings, there were areas where facilities succeeded in providing accessible environments. For example, many of the fitness facilities had equipment available that individuals did not need to transfer onto (e.g., free weights, cables), fitness instructors who were able to adapt existing fitness classes to meet the needs of persons with disabilities, and staff members who were trained in standard first aid and, in some cases, had other certifications (e.g., CanFitPro, certified Kinesiologists). Over 80% of the facilities offered programs or services to persons of all abilities, such as water aerobics and personal training. With the exception of two facilities, clients were encouraged to participate in programs at their own pace. More importantly, personal assistants were allowed to

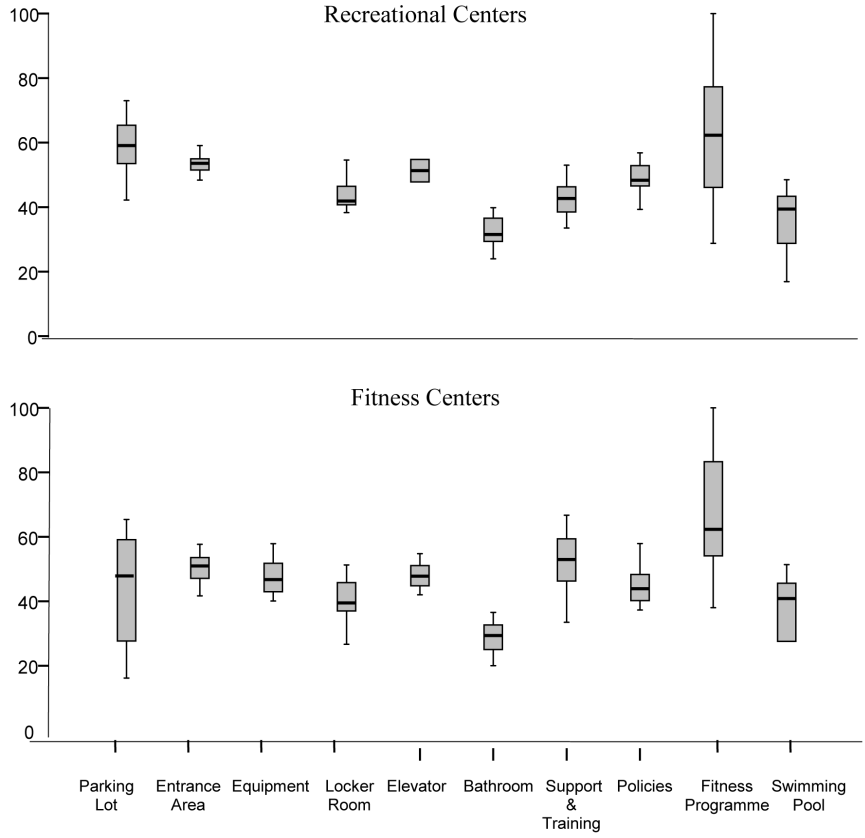

Figure 2 — Box plots of the accessibility ratings of each AIMFREE subscale stratified according to the two types of facilities. Ratings are based on Rimmer et al.'s (2004) linear conversion accessibility scale.

accompany customers to the facility free of charge. These physical activity opportunities are essential for fostering inclusive environments where all individuals within the community can participate actively with friends and family (ALACD, 2008).

Do Recreational and Fitness Facilities Differ on Their Universal Accessibility?

In general, recreational centers were more accessible than fitness centers, with significant differences in accessibility of parking and entrance areas. Similar findings were shown in an unpublished report on the universal accessibility of Ontario fitness and recreational facilities (Hawes, 2001), where the municipal sector (i.e., recreational centers) had better accessibility than either the not-for-profit (i.e., YMCAs or YWCAs) or commercial sectors on the majority of measured items. These preliminary results suggest that facility type may influence universal

accessibility for persons with disabilities. In particular, accessibility may be related to the facility's clientele and funding source. In the current study, all recreational centers were public, nonprofit organizations that provided services to families. Meanwhile, most fitness centers were private, for-profit organizations that targeted their services mainly toward adults without disabilities. Hence, motivation to create an accessible environment would likely differ across facilities. Interestingly, the recreational facilities tended to score higher on structural- and policy-related aspects of accessibility, while fitness centers tended to be rated more favorably on professional behavior-related aspects, such as disability-related support, training, and programming. Implications of our findings are to mandate equal physical activity opportunities (structural and attitudinal) for persons with disabilities across the different facility sectors.

Is There a Relationship Between Fitness Programming Availability and Facility Universal Accessibility?

Although most facilities offered programs, there was only a very modest correlation between program accessibility and the overall accessibility of fitness-related facility areas. In particular, only policies and swimming pool accessibility were correlated with availability of programming for people with disabilities. No significant correlation was found between the overall accessibility of general facility areas and program accessibility; however, modest correlations were found for the accessibility of elevators and bathrooms and the availability of programming for persons with disabilities. As hypothesized, facilities with more accessible pools, policies, and elevators provided more fitness programming to persons with disabilities. Contrary to hypothesis, facilities with the least accessible bathrooms had more fitness programming available to persons with disabilities. These preliminary findings indicate that facilities that provide accessible programs are not necessarily accessible. Facility owners need to ensure that the facility's physical environment corresponds with the available programming. Adapted programs are futile if disabled patrons cannot access the facility.

Study Limitations

A few limitations to the current study warrant mention. First, although the AIMFREE is a validated tool for assessing the universal accessibility of fitness and recreational centers for persons with disabilities, there are some caveats to its use. First, if there are items that do not apply to a given facility (e.g., the facility has no showers), then these items are scored "No" (i.e., not accessible), and the facility ultimately receives a lower score for that subscale. A second caveat is that some items assess aspects of universal accessibility that may be less relevant to populations with mobility disabilities (e.g., questions pertaining to facility lighting, size of buttons on equipment). These items were retained in our study so that comparisons could be made with other studies that have used the AIMFREE. Third, the AIMFREE items are based on the ADAAG. Many of the facility owners were unaware of these guidelines and were not legally required to meet these American standards. Last, the current study only focused on one midsize Canadian city. However, the target city is typical of other midsized Canadian cities, such as Edmonton, Winnipeg, and

Quebec, in terms of population, age, and income level (Statistics Canada, 2006), as well as the present results are consistent with previous research conducted in other Canadian (Hawes, 2001) and U.S. (Cardinal & Spaziani, 2003; Nary et al., 2000; Rimmer et al., 2005) cities.

Implications and Recommendations

The overall low facility universal accessibility ratings indicate the need for changes to be made to improve the accessibility of fitness and recreational facilities for persons with disabilities. First, and foremost, accessibility guidelines should be established for Canadian facility owners to adhere to. One option may be to use the ADAAG, which lists specific guidelines for recreational and fitness facility owners, such as dimensions for the wheelchair turning space around structures (i.e., 30-inch radius) and spacing between exercise machines (i.e., an adjacent clear space that is ³ 36 inches wide and 48 inches long; Rimmer et al., 2004). Second, an annual monitoring system should be created that confirms whether facilities are following the accessibility guidelines. This system would not only monitor the physical environment of the facilities, it would also ensure staff members are receiving specific accessibility-related training. Likewise, input from community members should be obtained to facilitate and prioritize accessibility-related changes within the facility. Third, an on-line registry for facility owners to list the available facility amenities for potential clients (e.g., fitness programs, accessible equipment, bathrooms, and locker rooms, staff training certifications), would be useful for individuals with disabilities to make informed decisions of their participation at a particular facility. Finally, at the policy level, laws must be implemented to increase the number of accessible programs available at fitness and recreational facilities for persons with disabilities (Sallis, Bauman, & Pratt, 1998). Together, these recommendations may help to enhance the universal accessibility, and ultimately the use of facilities for persons with disabilities.

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