

# Characteristics of Older Adult Physical Activity Program Users

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**R**egular physical activity improves physical, mental, cognitive, and functional health.<sup>1</sup> However, of all adults in the United States, adults over age 60 have the lowest rate (less than 5%)<sup>2</sup> of meeting the United States Department of Health and Human Services Physical Activity Guidelines (150 minutes of moderate intensity physical activity or 75 minutes of vigorous physical activity per week). As the older adult population in the United States continues to grow, finding effective means to promote physical activity and engage older adults in existing programs is imperative to promote healthy aging.

SilverSneakers (SS) and EnhanceFitness (EF) are 2 national, evidence-based physical activity programs for older adults. SS provides members with access to 11,000 fitness facilities nationwide; more than 40 Medicare health plans offer membership as a benefit.<sup>3</sup> EF offers group exercise classes at various community locations. In 2010, there were 486 active EF sites; the YMCA is currently working on adding locations.<sup>4</sup>

Both programs have been associated with lower healthcare costs in retrospective cohort studies.<sup>5-7</sup> For instance, a 6-month randomized trial found that participants in EF improved some Short Form-36 measures of health status as well as depressive symptoms.<sup>8</sup> Non-randomized studies show higher levels of physical function among people attending EF classes.<sup>9,10</sup>

For example, for the 12 months preceding May 2010, 6939 people attended 10 or more EF classes nationwide.<sup>4</sup>

Group Health (GH) is a nonprofit healthcare system serving over 600,000 members, predominantly in western Washington State. GH has provided coverage for EF and SS programs through Medicare Advantage for over a decade. Little has been known about the demographic and health characteristics of individuals who use EF and SS. Our goals in this study were to examine recent use patterns of the programs and to identify the characteristics of older adults who use the programs, compared with nonusers, to obtain insight into how efforts might be best targeted to improve program uptake.

## ABSTRACT

### Objectives

Physical activity levels are low among older adults. Many Medicare members have access to low-cost programs including Silver Sneakers (SS) and EnhanceFitness (EF) at no additional cost, however, utilization of these programs is low. We aimed to compare characteristics of people using SS and EF to nonusers of these programs to better understand the characteristics of these 2 populations and to guide future physical activity promotion program design.

### Study Design

Cross-sectional.

### Methods

We used 2010 and 2011 electronic health records including demographic, health condition, Charlson comorbidity score, healthcare cost and utilization, and SS and EF program utilization data from 37,492 Medicare members from a large integrated health care system. Models were fit using logistic and negative binomial regression adjusting for age, gender, race, ethnicity, BMI category, and primary care clinic location.

### Results

Compared with nonusers (N = 30,733; 82%), SS users (N = 6200; 16.5%) were younger and less likely to be male, obese, or have diabetes or cardiovascular disease; they also had lower Charlson scores and fewer hospital admissions than nonusers. EF users (N = 721; 2%) were older, were less likely to be male, had lower Charlson scores, and had fewer hospital admissions compared to nonusers.

### Conclusions

Low-cost, evidence-based physical activity programs are vastly underused by Medicare members. Our data suggest that targeting more chronically ill and obese older adults for physical activity programs might help improve the reach of existing evidence-based programs.

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### Take-Away Points

While physical activity levels are low among the Medicare eligible population, less than one-fifth of members in 1 healthcare system used available physical activity programs designed for older adults (Silver Sneakers and EnhanceFitness).

- People who used the Silver Sneakers program were younger, more likely to be women, less likely to be obese, and generally had fewer health conditions than those who did not.
- People who used EnhanceFitness were older, more likely to be women, and generally had similar rates of chronic conditions, except for lower rates of overall morbidity, compared with those who did not attend the program.
- Targeting people with chronic conditions, men, and people who are obese for uptake of these programs could expand their reach and population-wide impact.

to accommodate various functional abilities. EF has been offered by GH since 2001 and, for members who do participate, the average attendance is 7.6 classes per month.

### Characteristics of Interest

SS and EF provided program participation data from 2006 through 2011. People were considered EF or SS program “users” if they had a record of attending the program at least twice within a calendar year. Using GH’s unique membership identification numbers, we linked program participation data from 2011 to electronic health record (EHR) data containing diagnoses, demographics, and costs and utilization data from the year prior to use (2010). For those without a visit in the previous year, we extracted diagnosis data from 2009. Those without a visit during 2009-2010 were excluded from the analysis.

## METHODS

### Study Setting and Participants

Participants were between ages 65 and 99 and were continuously enrolled Medicare members of GH from January 1, 2009, through December 31, 2011. We excluded people residing in long-term care, hospice care, or skilled nursing facilities; who were wheelchair-bound; or who had serious mental health or substance use disorders (not including depression, anxiety, or dementia). This resulted in 37,492 eligible members.

### Physical Activity Programs

Both SS and EF provide GH Medicare Clear Care HMO plan enrollees access to their programs at no additional cost. GH Medicare members can learn about SS and EF programs via benefits websites, targeted mailings, or through word of mouth. Additionally, GH primary care providers can refer patients to EF and SS through an electronically generated summary of their visit that provides a phone number to call for enrollment.

**Silver Sneakers (SS).** SS provides participants with access to more than 50 fitness facilities throughout Washington State, primarily in western Washington.<sup>3</sup> At each, the participant can access the facility as any other gym member would; this includes individual use of exercise equipment or attending any group classes offered (including SS group exercise classes).

**EnhanceFitness (EF).** EF offers group exercise programs for participants at more than 50 community sites throughout western Washington, including senior centers, retirement facilities, and healthcare clinics. Instructors are certified to teach the program through a licensing process administered by Senior Services of Seattle. Each class follows a standardized format: 5 minutes of warm-up, 20-25 minutes of moderate-intensity aerobics, 20 minutes of resistance strength training, and 10 minutes of flexibility and balance exercises.<sup>11</sup> Participants can perform the exercises while seated, standing, or using an assistive device,

to accommodate various functional abilities. EF has been offered by GH since 2001 and, for members who do participate, the average attendance is 7.6 classes per month.

We compared users of SS and users of EF with non-users of either program. We compared these groups on demographic characteristics (age, gender, race/ethnicity); health conditions (obesity, diabetes, cardiovascular disease, falls, osteoarthritis, cancer, Charlson score); healthcare costs; and healthcare utilization obtained through electronic health record (EHR) data. When calculating body-mass index (BMI), we used the most recently available height. Members were classified into categories of weight status using BMI values for underweight (BMI <18.5), normal weight (18.5-24.9), overweight (25-29.9), and obese (30 and higher).

*International Classification of Diseases, Ninth Revision, Clinical Modification* diagnosis codes were used to define the chronic conditions of interest and were based on previously published definitions<sup>12</sup> or consensus by the research team, which included an internal medicine physician. Charlson scores are a general measure of comorbidity which are computed based on the presence of 19 conditions weighted for seriousness; scores are predictive of mortality.<sup>13</sup> Total healthcare costs, hospital admissions, and number of visits to primary care and specialty care in 2010 were also extracted from automated health plan data.

### Analysis Plan

We described patterns of use between 2006 and 2011 using simple descriptive analyses to examine trends in the percentage of GH-enrolled individuals using SS and EF. We examined the overall use rate (total number of users that year divided by the total number eligible to use

**Table 1.** Comparison of the Prevalence of Demographic and Health Conditions in Silver Sneakers (SS) Users, EnhanceFitness (EF) Users, and Nonusers

	Prevalence Of Characteristic or Diagnosis			SS vs Nonusers		EF vs Nonusers	
	Non-users, %	SS Users, %	EF Users, %	Adjusted OR	P	Adjusted OR	P
65-75 years	50	60	35	3.68	.0001	.86	.0001
75-85 years	34	34	48	2.81		1.64	
Over 85 years	16	6	18	Ref		Ref	
Male	47	40	26	0.74	.0001	0.43	.0001
Hispanic ethnicity	3.1	3.0	2.8	0.88	.14	0.74	.22
Caucasian race	84	89	84	1.24	.0001	0.98	.84
<b>BMI Category</b>							
Underweight	1	1	1	0.60	.0001	0.63	.16
Normal weight	28	30	36	1.31		1.20	
Overweight	39	40	38	1.28		1.16	
Obese	32	29	25	Ref		Ref	
Medical fall in the year	17	19	19	1.07	.06	1.06	.57
Diabetes	20	16	17	0.77	.0001	0.86	.18
Cardiovascular diseases	35	30	34	0.84	.0001	0.96	.67
Cancer	9	9	9	0.93	.18	0.94	.66
Osteoarthritis	24	28	27	1.16	.0001	1.05	.55

SS users: 6201 eligible in 2011; EF users: 721 eligible in 2011.  
Adjusted odds ratios and P values from a logistic regression model which controlled for age group, gender, race, ethnicity, BMI category, and primary care clinic location.

the programs that year) and the percentage of users who had used the program in the previous year (continuing users). The difference between the total number of users and continuing users represents the percentage of new users (users who had not used the program in the previous year).

To examine binary and categorical characteristics (demographic, BMI, and health diagnosis variables) between program users and nonusers, we fit logistic regression models. We compared means for continuous variables (cost, utilization, and Charlson scores) between users and nonusers using negative binomial regression (similar to least-squares regression with better accounting for skewness). All models were adjusted for age, gender, race, ethnicity, BMI category, and primary care clinic location (in associations for demographic and BMI variables, we adjusted for all other variables). We adjusted for primary care clinic location because some clinics may be in closer proximity to more EF or SS sites. We required a  $P < .01$  for significance to control for the number of analyses performed and to reduce the rate of false positive findings. Analyses were conducted using SAS version 9.2 (Cary, North Carolina).

## RESULTS

### Demographic Characteristics

In 2010, the average age of the sample was 76.4 (SD = 7.5) years. **Table 1** shows the characteristics of SS and EF users. In adjusted models, SS users were generally younger, less likely to be male, and more likely to be white. SS users were also less likely to be underweight and more likely to be normal weight or overweight. EF users were generally older and less likely to be male in adjusted models.

### Patterns of Program Use

Out of those eligible for SS and EF, 16.5% used SS and 1.9% used EF in 2011 (data not shown). Use of EF stayed relatively stable (~2%) between 2006 and 2011, declining from 870 to 721 users. Use of SS increased from about 10% to more than 16% in that period, growing from 4043 to 6201 users). In 2011, the majority of program users were continuous users: 88% for EF, 74% for SS.

### Relationship with Health Conditions, Healthcare Costs, and Utilization

In adjusted models, as shown in **Table 1** and **Table 2** SS users were less likely to have several chronic con-

**Table 2.** Comparison of Healthcare Costs and Utilization in Silver Sneakers (SS) Users, EnhanceFitness (EF) users, and Nonusers.

	Mean Values			SS		EF	
	Non-users	SS users	EF Users	Ratio of means	P	Ratio of means	P
Total healthcare costs	\$7001	\$6808	\$6441	0.96	.08	0.89	.09
Hospital admissions per year	0.26	0.21	0.15	0.82	.008	0.61	.02
Primary care visits	4.43	4.68	5.14	1.05	.0001	1.08	.03
Specialty care visits	6.09	6.61	6.4	1.04	.006	1.01	.83
Charlson score	1.13	0.88	0.96	0.82	.0001	0.51*	.001

Adjusted ratios of means and P values from a negative binomial regression model (with log link and empirical standard errors) which controlled for age group, gender, race, ethnicity, BMI category, and primary care clinic location.

ditions (eg, diabetes, cardiovascular disease), were in better overall health as evidenced by lower Charlson scores, and had fewer hospital admissions than non-users. SS users had more primary and specialty care visits. There were no differences between SS users and nonusers for cancer or medical falls while there were higher rates of osteoarthritis among SS users. Charlson scores and hospital admissions were significantly lower for EF users with no other comparisons reaching statistical significance.

## DISCUSSION

In a healthcare system that provides widespread access to 2 evidence-based physical activity programs for Medicare members, we found that fewer than 20% of those eligible used the programs at least twice in 2011. In addition, very few new users began EF in 2011, while about one quarter of SS users were new in 2011. SS use increased while EF use remained about the same over the 5-year period.

Users of EF and SS had several characteristics that set them apart from nonusers. Individuals who used EF or SS were more likely to be women, contrary to previous studies suggesting that SS users were more likely to be male.<sup>5,6</sup> However, these prior studies used age- and gender-matched comparison groups. Those using EF were more likely between 75 and 85 years old, while SS users were more likely between 65 and 75 years old. Previous studies have not reported on age differences in user groups.

Individuals who used SS were less likely to be classified as underweight or obese. While patterns were similar for EF, models were not significant. Previous studies have not examined BMI differences in users and nonusers. Obesity is associated with increased healthcare costs, morbidity, and mortality,<sup>14,15</sup> and physical activity among obese older adults could help improve physical function

and health, and reduce body weight or mitigate weight gain.<sup>1,16,17</sup> Our finding that both EF and SS users were less likely to be classified as obese has implications because women over age 60 have the highest rate of obesity in the US (42%).<sup>18</sup> EF and SS may not appeal to or cater toward obese older adults who may have more mobility limitations, multiple chronic conditions, and less ability to be active.<sup>19</sup>

We also found that, while EF users had significantly lower overall comorbidity assessed by Charlson score, they did not differ from nonusers on most of the specific chronic health conditions we examined. On the other hand, SS users had lower likelihood of cardiometabolic conditions (eg, diabetes, cardiovascular diseases) and lower Charlson scores. Overall, the findings suggest that EF is more used by patients with chronic health limitations that tend to become more common as people age, and SS may be more appealing than EF to younger and generally healthier older adults. While EF may be used more among people with chronic conditions, it is less utilized than SS overall. Innovative methods for health systems to better promote use of EF, particularly for older adults with chronic conditions, should be examined since the current system, which relies mainly on passive methods (eg, benefits websites) and physician referrals, does not appear to be highly effective in isolation.<sup>20,21</sup>

### Study limitations

There are several limitations to our study. We relied on medical diagnosis codes, which can be inaccurately entered into the health record. In addition, our EF user group was relatively small, which may have limited our ability to detect differences. Finally, we defined demographic and health characteristics prior to use of SS and EF, but users could have been using the program for several years prior, so essentially our data can be interpreted as cross-sectional.

## CONCLUSIONS

Free and low-cost physical activity programs are vastly underused among older adults, who typically have very low levels of physical activity. Our study presented novel data on use patterns of older adult physical activity programs and a direct comparison of the characteristics of SS and EF users to nonusers. This data can inform future efforts to proactively target new user groups such as men, individuals with cardiometabolic conditions, and obese older adults.

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