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Comparing the Effectiveness of Peer Mentoring and Student Mentoring in a 35-week Fitness Program for Older Adults

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Abstract

Purpose—To investigate the applicability and effectiveness of a peer mentored exercise program, this study compared the retention and participation rates, and physical improvements of older adults trained by peer mentors (PM) to a group trained by young qualified student mentors (SM).

Methods—A group of older adults were prepared as peer mentors through a 30-week preparation program. Later, 60 older adults (mean $\pm$ SD age: 68.7 ± 6.1 years) were recruited and randomly assigned to either the PM or SM group. Both groups completed an identical 35-week fitness program. Pre-, midterm- and post-training assessments of fitness were completed and rates of participation and retention were documented.

Results—The same retention rates were observed in the two groups, but SM group had higher participation. Both groups improved significantly in all measures of fitness and there were no significant post-test differences between the groups in the fitness measures.

Discussion—Findings suggest that the peer mentor model is applicable in an older adult exercise program and may be as effective as a program mentored by young professionals.

Keywords

aging; peer mentor; older adult fitness; elderly exercise; peer counseling

1. Introduction

Recent U.S. statistics indicate that more than 87% of adults age 65 or older are considered inactive as they do not engage in moderate-to-vigorous physical activity regularly (Center for Disease Control and Prevention, 2008). Lack of physical activity is a significant contributor to the decline in overall function, several chronic diseases and premature death of older adults (Blumenthal et al., 1991; CDC, 2008, King et al., 1998). The majority of exercise interventions fail to get older adults to adopt a physically active lifestyle or keep

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participants active for extended periods (van der Bij et al., 2002). Longer term programs (i.e., 6 months or more) typically retain less than 50% of older adults who start the given program (King et al., 1998; Rhodes et al., 1999; Schutzer & Graves, 2004). Generally, the greatest attrition occurs during the initial three months of a program (Boyette et al., 2002) and typically early drop-outs are those older adults who would benefit the most from the intervention (Rhodes et al., 1999; Schutzer & Graves, 2004). Another crucial element of physical activity programs is the participation rate, or the average number of sessions attended by all participants compared to the total number of sessions offered. It has been indicated that longer term (i.e., more than 6 months) physical activity programs for older adults typically achieve 36% to 84% participation rates (van der Bij et al., 2002); however, with most reports it is unclear how dropouts were considered in the calculation of participation rate, thus there is a potential inflation in these reported rates (van der Bij et al., 2002).

The majority of older adults share common barriers that prevent them from participating in comprehensive physical activity programs (O'Neill & Reid, 1991; Schutzer & Graves, 2004). A major challenge is that inexperienced and unfit older adults require individual attention when engaging in physical activities and community-based programs typically lack any type of professional assistance or social support (CDC, 2008). Moreover, most older adults lack the understanding of the benefits of exercise for disease prevention and the knowledge or experience necessary to exercise alone (Grove & Spier, 1999; Schutzer & Graves, 2004). These older adults require social support from an exercise specialist or a peer. Reports suggested that interventions utilizing some type of social support, such as building social networks or setting up a "buddy" system, have great potential to increase older adults' participation in physical activity and improving overall fitness (Kahn et al., 2002; Walcott-McQuigg & Prohaska, 2001). Another report suggested that older adults who receive greater social support show greater exercise adherence and higher level of reported program enjoyment (McAuley et al., 2003). In spite of these suggestions several barriers exist that prevent most older adults from regular exercise, including lack of access to health care professionals and exercise specialists with the time, knowledge and experience necessary to work with older adults (Bratter & Freeman, 1990; CDC, 2008; Grove & Spier, 1999), and the costs of working with these professionals (Belza et al., 2004; Bratter & Freeman, 1990). Also, exercise intervention programs for older adults typically do not utilize any type of peer or social support system, or any strategies for participant retention (van der Bij et al., 2002).

These barriers may be overcome by preparing and employing older adults as peer mentors in low-cost older adult exercise programs. The basic concept of peer mentoring is that individuals in similar situations or with similar problems have a unique resource to offer one another (Medvene, 1992). These individuals may be capable of providing basic counseling to others, if they receive adequate training to become effective peer mentors (Kirkpatrick & Patchner, 1987). The proper amount of preparation and quality of training for the peer mentor applicants prior to an intervention differentiates peer-mentoring from spontaneous peer leadership or unorganized peer support that some intervention studies used (i.e., Gillett et al., 1996; Grove & Spier, 1999). The employment of volunteer peer mentors allows cost-efficiency for exercise programs compared to employing fee-based trained professionals. Volunteer peer mentors have been used successfully in various clinical interventions and appeared to be an effective intervention method for a variety of populations, including patients with arthritis (Lorig et al., 2001), cardiac patients (Parent & Fortin, 2000), breast cancer patients (Ashbury et al., 1998), HIV patients (Broadhead et al., 2002), burn patients (Williams et al., 2002), and diabetic patients (Joseph et al., 2001). Although there are several well-known health promotion programs for older adults that use volunteers as peer mentors (such as Active Start, Active Choices, Enhance Wellness, Healthy Changes, Healthy Moves

for Aging Well, Matter of Balance, and Women Take Pride), research in this area has been sparse. A recent study by Layne and colleagues (2008) examined the feasibility of the peer mentor (peer leader) model in community-based strength training programs for older adults and reported success in disseminating programs through the employment of peer mentors. Previous findings from our laboratory also indicated effectiveness of peer mentoring in a controlled older adult exercise program (Dorgo et al., 2009a; Dorgo et al., 2009b).

The present intervention study aimed to improve the functional performance of older adult participants. A group of older adults were trained as peer mentors who later provided a peer support system to other older adults through a 35-week exercise intervention. Our hypothesis was that older adults working with peer mentors would exhibit similar or greater program adherence and comparable physical benefits as other older adults working with qualified young trainers. Consequently, the purpose of our study was to document the retention and participation rates, as well as the changes in physical fitness for a group of older adults trained by peer mentors compared to a similar group trained by qualified young trainers.

2. Methods

2.1 Program Design

The implementation of this two part study included a 30-week Peer Mentor Preparation stage and a 35-week Intervention stage. The purpose of the peer mentor preparation stage was to identify and train 30 older adults as peer mentors. For the intervention stage, 60 additional older adults from the local community were assigned to either an exercise group trained by peer mentors or a group trained by young student mentors. Student mentors were senior level undergraduate Kinesiology student volunteers with 3 weeks of hands-on training to work with older adults. The 30-week peer mentor and the 3-week student mentor preparation program intended to provide the mentors the knowledge and experience necessary to work with older adults. As mentors in both groups were volunteers and provided their service for free, the program was offered to the intervention participants at no cost, thus enhancing the program's accessibility. Mentors in both groups were asked to provide individual attention, motivation and support to intervention participants.

For all intervention participants, pre- (baseline), midterm (14 weeks), and post-training (35 weeks) assessments of functional fitness were completed. The project was approved by the appropriate Institutional Review Board and each peer mentor and intervention participant provided written informed consent to participate. Prior to the experiment, the complete testing procedure and training protocol were thoroughly explained to each subject both orally and written in the consent form.

2.2 Preparation of Peer Mentors

Thirty older adults (N=15 men; N=15 women) with a mean ($\pm$ SD) age of 68.4 ± 5.9 years (range: 60–79 years) were selected from a pool of 90 applicants to participate in a 30-week peer mentor preparation program. Older adult applicants were recruited from the local community through program announcements on local television channels and newspapers. Each applicant's potential as a peer mentor was assessed by questionnaire based on previously developed screening criteria (Hoffman, 1983; Wilson & Johnson, 2001) including being 60 years of age or older, good physical health, positive personality traits (e.g. extraversion, agreeableness, conscientiousness, emotional stability, and openness), desire to be trained, full commitment to regular participation, willingness to work as a peer mentor, and previous supervisory experience. Each applicant's responses to the survey questions designed to provide information regarding health status and medical concerns,

physical activity background and habits, general mentoring experience, and personality characteristics were evaluated by the researchers and converted into numeric scores using a rubric. The applicants were then ranked based on the calculated numeric scores and the thirty highest scoring individuals were invited to participate in the peer mentor preparation program. All selected individuals reported being healthy and suitable for participation in an exercise program, and most individuals reported performing regular physical activities previously on their own. No applicant reported recent participation in organized exercise programs or physical activity classes. Prospective peer mentors provided a written release statement from their personal physician clearing them for participation in the program.

Following the recruitment process, a 30-week peer mentor preparation program was implemented to improve the subjects' physical health and fitness, and to train the subjects to be peer mentors for the older adults of the intervention stage. The peer mentor preparation stage has been described previously (Dorgo et al., 2009a). Briefly, prospective peer mentors completed three 75-minute supervised exercise sessions per week and attended monthly lectures designed to enhance general knowledge of aging, health and fitness, principles of training, methods of warm-up and stretching, and exercise safety. The initial 14 weeks of the program focused on physical fitness, exposure to a variety of exercises and training techniques, and improving subjects' image as a positive role model of health. In addition to the vigorous physical training, weeks 15–30 of the peer mentor preparation included the development and practice of mentoring skills during exercise sessions through one-on-one mock training sessions with prospective peer mentors, and a 3-week training period of unfamiliar college students. At the conclusion of the 30-week physical and educational preparation period, subjects remaining in the program became peer mentors and recognized "Ambassadors" of the program.

2.3 Student Mentors

Seventy-nine undergraduate Kinesiology student volunteers were recruited as student mentors. These students had previously completed a series of academic courses related to physical fitness (anatomy, exercise physiology, personal training, fitness programs, etc.). Not all student mentors held a personal trainer certification at the time of the intervention; however, all had completed their preparatory courses for the certification exam, were near their academic graduation, and received 3 weeks hands-on training to work one-on-one with older adults.

2.4 Intervention Program

Recruitment of the intervention stage participants occurred simultaneously during weeks 25–30 of the 30-week peer mentor preparation program. Sixty-two applicants were recruited from the local community. Sixty older adults were invited to become intervention participants based upon the criteria: a) age 60 years or older; b) a written statement from personal physician indicating a level of physical health conducive to exercise participation; c) a written statement of full commitment to regular participation; and d) having reliable personal transportation. All 60 older adult volunteers provided the physician's release for program participation; therefore, no other health conditions were used to exclude individuals from program enrollment. Volunteers were allowed to withdraw from the program at any time and received no incentives or financial compensation; however, the intervention program was provided free of charge.

Prior to the program, intervention participants were informed that they would be assigned to work either with student mentors or peer mentors; however, specific group assignments were not disclosed until the first program session. The 60 older adult intervention participants (N=31 men; N=29 women; mean $\pm$ SD age: 68.7 ± 6.1 years; age range: 60–82

years) were randomly assigned to one of two groups: 1) a student-mentored (SM) group (N = 15 men, N = 15 women), or 2) a peer-mentored (PM) group (N = 16 men, N = 14 women).

The SM and PM groups engaged in a 35-week intervention program with three 75-minute training sessions per week. The SM and PM groups engaged in identical exercise programs that were designed by the researchers. Both groups performed the same exercises with the same number of sets and repetitions. Also, the rest intervals between sets and exercises were identical. The role of the student mentors and peer mentors were exactly the same for each respective group; they were instructed to follow the prescribed exercise program, guide their intervention participant through all exercises, assist them with the execution of movements, and motivate them for greater effort. In general, the SM and PM groups had a mentor to participant ratio of 1:1. In the rare occasion when intervention participants outnumbered the available mentors in a given exercise session, some mentors volunteered to work simultaneously with two intervention participants.

For a given exercise session, all intervention participants were paired with a mentor; however, the pairing of the intervention participants with student mentors or peer mentors was not controlled by the researchers. Participants were allowed to partner with any of the respective mentors and to switch mentors from session to session; but, neither student mentors nor peer mentors were allowed to refuse partnering with a given participant. The daily supervision of the intervention program was the responsibility of trained and experienced program supervisors, whose duties included monitoring program safety, ensuring proper execution of the prescribed training session, and answering questions from mentors. One program supervisor was present for a given exercise session and was instructed to intervene with the mentoring only when necessary (i.e. unsafe exercise execution or improper spotting noticed).

2.5 Assessment Protocols

A functional fitness testing battery designed specifically for older adults (Rikli & Jones, 1999) was used to assess the physical fitness of all SM and PM participants at baseline, midterm (14 weeks), and following the 35-week intervention program. Assessments were conducted by the researchers and by a small group of student volunteers who received specific training on the assessment procedures. The functional assessment included hand grip dynamometry (isometric upper-body muscular strength); 30-second chair stand and 30-second arm curl tests (lower- and upper-body muscular endurance); chair sit-and-reach and back scratch tests (lower- and upper-body flexibility); 6-min walk test (cardiovascular fitness); forward reach test (balance), and 8-ft up-and-go test (motor agility and dynamic balance). Performance on the handgrip strength test was defined as the greatest score (in kg) achieved on the handgrip dynamometer with the dominant hand out of two attempts. Performance on the 30-second chair stand and 30-second arm curl tests was defined as the maximum number of repetitions achieved in 30 seconds. Flexibility performance assessed by the chair sit-and-reach and back scratch tests and balance performance assessed by the forward reach test were defined as the maximum distance (in inches) achieved out of two attempts. Cardiovascular fitness performance was defined as the maximum distance (in yards) walked in 6-minutes. Finally, motor agility performance was defined as the least amount of time (in seconds) required to complete the 8-ft up-and-go test. In addition to the fitness assessments, in order to detect potential differences between SM and PM group participants at baseline, perceived physical, mental and social functioning was also assessed using the Short Form-36 version 2 (SF-36v2) health survey instrument.

2.6 Statistical Analysis

All statistical analyses were performed using the SAS version 9.1.3 (SAS Institute Inc., Cary, NC) software package. Pre-, midterm- and post-test data were analyzed using a General Linear Mixed Model Analysis for repeated measures with Tukey's post-hoc procedure for the mean comparisons. Pre- versus midterm-test, midterm- versus post-test, and pre- versus post-test results were compared to evaluate the changes in physical fitness and trace the necessary time-span for such changes. Program retention was defined as the ratio between the retained participants and the total number of participants at the beginning of the intervention. Participation was defined as attendance at a given program session and participation rate was determined by dividing the number of sessions attended by the total number of sessions offered. Program participation data for the SM and PM groups were compared by an independent sample *t*-test. Criterion alpha level for significance was set at $p \leq 0.05$ for all analyses.

3. Results

Older adults participating in the peer mentor preparation stage of the study demonstrated 93% retention rate, as 28 of the 30 peer mentors completed the 30-week peer mentor preparation program. Of the 28 peer mentors that started the intervention stage, 21 stayed in the program throughout the 35-week intervention. This translates to 75% retention (21 out of 28) for the intervention stage, or 70% retention for the entire program (combined peer mentor preparation and intervention stage, a total of 65 weeks). During the 35-week intervention stage, peer mentors attended an average 75.1% of the training sessions where they mentored older adults (40.6 sessions of a total 54 sessions). No student mentors dropped out of the 35-week intervention, and 100% participation was achieved by allowing students to substitute for one another when necessary, thus ensuring that the exact number of needed student mentors were present for each exercise session.

Baseline descriptive characteristics of all individuals enrolled as the peer mentors ($N=30$), and SM and PM group intervention participants ($N=60$) are presented in Table 1. At baseline, there were no statistically significant differences between the SM and PM groups for age, height, weight, or BMI measures ($p>0.48$). In addition, no significant difference was observed between the SM and PM groups related to self-reported overall physical functioning ($p>0.18$), as measured by the PCS subscale of the SF-36v2 health survey instrument (Ware, Kosinski, & Dewey, 2000).

Functional fitness tests for the intervention participants (Table 2) showed no significant differences between the SM and PM groups at baseline ($p>0.068$). Compared to baseline values, with the exception of the hand grip strength test in the PM group ($p=0.0612$), assessment results at midterm indicated that participants made significant improvements in all other fitness measures in both the PM ($p<0.0147$) and SM ($p<0.0132$) groups. No changes were observed in group differences from baseline to midterm-test, as all fitness measures remained similar between the two groups ($p>0.072$). Similar trends were observed in the post-test data when compared to baseline. Both the SM and PM groups improved significantly from baseline to post-test in all fitness measures ($p<0.0076$). Similar to baseline and midterm-tests, group differences remained non-significant at post-test for any of the fitness tests ($p>0.057$). While baseline to post-test comparisons indicated significant improvements in all measures, midterm- to post-test comparisons did not indicate a clear trend. For the 30-second chair stand, 30-second arm curl, and 8-ft. up-and-go tests, trends showed continuous improvements in both groups from midterm- to post-test ($p<0.0028$). For the forward reach test, only the SM group showed a significant improvement from midterm- to post-test ($p=0.0245$), while the PM group's post-test performance did not change compared to midterm ($p=1.00$). For the 6-minute walk, hand grip strength, sit-and-reach and

back scratch measures, the initial (baseline to midterm) significant improvement transferred into only minimal and non-significant ($p>0.1693$) improvement from midterm- to post-test in both groups. Intervention participants in the PM and SM groups completed the 35-week fitness program without any adverse events or major injuries.

For the intervention stage, 38 of the 60 intervention participants completed the 35-week program with identical retention rates for the SM and PM groups. Specifically, 19 SM participants (N=11 men; N=8 women) and 19 PM participants (N=13 men; N=6 women) completed the post-training assessment at 35 weeks. During the 35-week intervention participation rates were also similar ($p=0.130$) between the groups (Table 3).

4. Discussion

The key objective of this study was to observe whether a 30-week peer mentor preparation would provide sufficient training for a group of older adults (with no previous training in fitness or an adequate level of experience with exercise supervision) to become effective peer mentors of fitness, and to assess whether older adult intervention participants working with peer mentors would demonstrate similar adherence, participation, and physical fitness improvements as those who were mentored by qualified young trainers. Findings of this study partially point in this direction.

Previously reported reviews of the literature on older adult exercise programs suggested that programs of six months in duration or longer typically retain less than 50% of participants, translating to a greater than 50% attrition (Rhodes et al., 1999; Schutzer & Graves, 2004). Another report claimed that older adult exercise programs in general reach 50% attrition as early as three months into the intervention (King et al., 1998). In light of these reported retention/attrition rates, our study's achieved 63.3% retention (36.7% attrition) rate for the 35-week exercise program compares favorably. Reasons for the majority of attrition in our intervention were predominantly due to situational circumstances (i.e. participants experiencing a substantial life change) rather than program dissatisfaction.

Given that one of the tasks of the mentors was to motivate intervention participants to attend the program regularly and to contact them if they were extensively absent, this type of positive reinforcement may have contributed to the favorable retention rates in our study. Also, as intervention participants did not receive any forms of incentive to attend the program, it appears that the social support provided by both the peer and student mentors affected the program participants' willingness to continue with the program. However, as equally nineteen of 30 participants (63.3%) completed the 35-week intervention in both the peer-mentored (PM) and student-mentored (SM) groups (Table 3), we cannot conclude that peer mentors were more effective than young professionals in retaining older adult participants. From these data it is reasonable to conclude that mentoring (or providing social support) in general had a positive effect on participant retention and that the characteristics of the mentors (younger or older adults, professionals or volunteers) may not have affected retention rates significantly.

Furthermore, we found that participation rates were also similar in the two groups. We observed that the 19 retained intervention participants in the SM group attended the training sessions with a slightly greater frequency than the 19 PM group participants throughout the 35-week intervention (78.2% and 70.7%, respectively; $p=0.130$). These participation rates compare favorably to those reported for similar older adult exercise interventions. For example, McMurdo (1994) reported 72% participation for a group of 65 participants attending two strength training sessions weekly over 6 months. For 12-month walking programs with three sessions per week, Chow (1987) reported 70% and Cunningham (1987)

reported 63% participation with older adults. None of these authors reported if any type of social support or motivational strategies were used to encourage participation. For our intervention, we found it promising that peer mentors were able to motivate older adult participants to achieve reasonably high participation and retention rates.

Mentors in both the SM and PM groups demonstrated high retention and participation rates during the 35-week intervention stage. The 75% retention and 75.1% participation rate demonstrated by the peer mentors indicates that these volunteer older adults were committed to the intervention and took their mentoring tasks seriously. Student mentors outperformed peer mentors in terms of retention and participation; however, the conditions of their volunteer work were different than that of the peer mentors. Volunteer student mentors were available in greater numbers than peer mentors or SM group intervention participants; therefore, through pre-arranged scheduling and occasional substitutions, 100% group participation was achievable. On the contrary, in the PM group the number of peer mentors generally matched the number of intervention participants (affected by the attrition of the peer mentors or the participants); therefore, all peer mentors were asked to be present at all exercise sessions, without the option of substitution. Inevitably, peer mentors had to occasionally miss a session, which reduced the group participation rate below that of the student mentors. In addition, while student mentors received academic incentives for their volunteer work, which unquestionably improved the retention of student mentors, older adult peer mentors worked on a true volunteer basis, without any incentives or compensation for their services. In light of these circumstances, the peer mentors' commitment to the intervention is commendable.

Evidently, the 35-week exercise program was effective for improving the functional fitness performance scores of both the SM and PM groups. Compared to pre-training values, both groups demonstrated significant improvements ($p < 0.0076$) for all fitness tests (Table 2). When comparing the post-intervention performance scores between the SM and PM groups, we found that groups performed very similarly at post-test and there were no significant differences between the groups for any of the fitness measures. In fact, absolute changes for the fitness measures from baseline to post-test were similar between the SM and PM groups (Table 2). Our interpretation of the positive changes in various functional performance scores is not only that the program was effective for both groups, but that the peer mentors were able to guide the intervention participants adequately, eliciting considerable improvements in their fitness measures.

A limitation of the present study was that the number of retained SM and PM group intervention participants may have been too small to detect statistical significance in some fitness assessment comparisons. The statistical powers computed from the fitness assessment results ranged from 6% to 38%. However, when calculating the sample sizes needed to achieve 80% power for some of the fitness assessments, we found that 53 retained participants would have been necessary per intervention group. Calculating with the 63% retention rate achieved in each group for the intervention period, 84 intervention participants would have been necessary for each intervention group. This inevitably would have required more peer mentors and student mentors to accommodate the larger group size. The recruitment of a large mentor and intervention group, and the management of such an intervention over the 35-week period were beyond the capabilities of the fitness facility used for this study.

Nevertheless, the findings of this study suggest that an exercise program for older adults can be effectively implemented utilizing trained and marginally experienced peer mentors and that peer mentors can effectively improve the functional fitness of older adult participants. These results are in accordance with previous studies that reported the effectiveness of peer

mentoring in various clinical settings (Lorig et al., 2001; Parent & Fortin, 2000; Ashbury et al., 1998; Broadhead et al., 2002; Ezumi et al., 2003; Williams et al., 2002; Joseph et al., 2001).

5. Conclusion

The peer mentoring model was applied successfully in our intervention and study results indicated that older adults guided by our peer mentors achieved similar improvements in physical fitness as others guided by young professionals. Peer mentors demonstrated the ability to retain program participants as effectively as the young student mentors. Given that our older adult peer mentors volunteered their program assistance, our program costs were significantly reduced compared to hiring professional staff. These results suggest that the peer mentoring model has the potential to be a cost-effective method of reaching out for older adults, engage them in long-term exercise programs and improve their health and fitness.

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Table 1

Mean ($\pm$ SD) descriptive characteristics of peer mentors, the student-mentored (SM) and the peer-mentored (PM) group participants at baseline

GROUP	N	Age (years)	Height (cm)	Body Mass (kg)	BMI (kg/m ²)
Peer Mentors					
Males	15	70.4 $\pm$ 5.9	174.5 $\pm$ 6.7	83.6 $\pm$ 11.4	27.4 $\pm$ 2.8
Females	15	66.8 $\pm$ 5.3	162.3 $\pm$ 5.0	70.0 $\pm$ 7.7	26.6 $\pm$ 3.1
SM group					
Males	15	68.9 $\pm$ 5.4	173.0 $\pm$ 8.4	89.4 $\pm$ 11.4	29.8 $\pm$ 2.9
Females	15	68.9 $\pm$ 8.1	160.0 $\pm$ 6.8	67.81 $\pm$ 9.1	26.7 $\pm$ 4.3
PM group					
Males	16	69.3 $\pm$ 6.3	173.4 $\pm$ 5.0	88.2 $\pm$ 11.0	29.3 $\pm$ 3.1
Females	14	67.8 $\pm$ 4.5	158.8 $\pm$ 5.3	69.5 $\pm$ 15.3	27.6 $\pm$ 6.0

Table 2
Mean ($\pm$ SD) functional fitness scores for the student-mentored (SM) group and the peer-mentored (PM) group

Variable	Group	Baseline	Midterm	Post-Training	Absolute Change	Percent Change	Baseline-Post P-value
30-s Chair Stand (repetitions) ^a	SM	20.8 $\pm$ 5.5	27.0 $\pm$ 6.3	31.4 $\pm$ 7.7	10.5	50.5	<0.0001
	PM	17.3 $\pm$ 4.2	23.5 $\pm$ 5.4	27.6 $\pm$ 6.0	10.4	60.1	<0.0001
30-s Arm Curl (repetitions) ^b	SM	22.3 $\pm$ 4.2	30.1 $\pm$ 6.4	34.8 $\pm$ 7.2	12.5	55.9	<0.0001
	PM	22.4 $\pm$ 5.0	29.5 $\pm$ 4.7	33.9 $\pm$ 5.9	11.6	51.8	<0.0001
Handgrip Dynamometer (kg) ^b	SM	35.2 $\pm$ 12.2	38.5 $\pm$ 13.2	38.2 $\pm$ 12.4	3.0	8.5	0.0032
	PM	36.1 $\pm$ 9.8	38.3 $\pm$ 10.7	38.9 $\pm$ 9.8	2.8	7.7	0.0075
Chair Sit-and-Reach (in) ^c	SM	0.4 $\pm$ 5.1	3.4 $\pm$ 4.5	3.6 $\pm$ 3.9	3.2	<i>h</i>	<0.0001
	PM	-0.3 $\pm$ 4.7	2.6 $\pm$ 4.4	2.9 $\pm$ 4.9	3.2	<i>h</i>	<0.0001
Back Scratch (in) ^d	SM	-2.8 $\pm$ 4.9	-1.6 $\pm$ 3.7	-1.5 $\pm$ 4.5	1.4	<i>h</i>	0.0048
	PM	-2.5 $\pm$ 3.3	-1.3 $\pm$ 3.1	-1.2 $\pm$ 3.3	1.3	<i>h</i>	0.0068
6-Minute Walk (yards) ^e	SM	638.4 $\pm$ 113.7	715.7 $\pm$ 88.8	731.4 $\pm$ 90.6	93.0	14.6	<0.0001
	PM	634.4 $\pm$ 89.9	691.3 $\pm$ 106.8	724.0 $\pm$ 79.5	89.7	14.1	<0.0001
8-ft Up-and-Go (s) ^f	SM	5.1 $\pm$ 0.9	4.1 $\pm$ 0.6	3.5 $\pm$ 0.5	-1.7	32.5	<0.0001
	PM	5.3 $\pm$ 0.9	4.5 $\pm$ 0.9	3.8 $\pm$ 0.7	-1.4	27.6	<0.0001
Forward Reach Test (in) ^g	SM	14.8 $\pm$ 2.8	16.9 $\pm$ 3.7	18.5 $\pm$ 2.9	3.7	24.9	<0.0001
	PM	15.2 $\pm$ 2.1	18.2 $\pm$ 2.4	18.3 $\pm$ 2.6	3.1	20.7	<0.0001

^aLower body strength test: 30-second chair stand.

^bUpper body strength: arm curl and handgrip dynamometer.

^cLower body flexibility: chair sit-and-reach.

^dUpper body flexibility: back scratch.

^eAerobic endurance: 6-minute walk.

^fMotor agility: 8-ft up-and-go.

^gBalance: forward reach test.

^hDue to potential negative values for the flexibility tests, calculations of percent change are not applicable

Table 3

Participant retention and mean ($\pm$ SD) participation rates for the student-mentored (SM) group and the peer-mentored (PM) group

Group	Number of participants at baseline	Number of participants at 35 weeks	Retention rate	Average number of training sessions attended (out of 54)	Percent participation ^a
SM Group	30	19	63.3%	42.2 $\pm$ 7.5	78.2%
PM Group	30	19	63.3%	38.2 $\pm$ 8.6	70.7%

^aPercent participation calculated for subjects completing the 35-week program.