

Research Paper

A wellness program for individuals with disabilities: Using a student wellness coach approach

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Abstract

Background: Individuals with disabilities are at higher risk of health conditions; thus, there is a need to provide hands-on opportunities for pre-healthcare professionals to interact with individual with disabilities as well as deliver wellness services to this population.

Objective: Examine the feasibility and effectiveness of a student-led wellness program for individuals with disabilities.

Methods: Thirty-two undergraduate student wellness coaches between the ages of 19–23 years, and fifteen participants with disabilities, ranging in ages from 28 to 74 years were included in this study. Every participant was assigned to at least 1 student wellness coach with the purpose of establishing an individualized wellness plan.

Results: After 3 months (fall 2013 academic semester), all wellness coaches demonstrated improved clinical interaction and confidence toward working with the participants. The participants had an average weight loss of 2.0 ± 2.9 kg, ranging from 0.0 to 9.0 kg. All participants had improved functionality and fitness and reported high satisfaction toward the program.

Conclusions: This study demonstrated the impact of a unique program on the education of pre-healthcare professionals and the overall wellness of participants with disabilities. The program model has the potential to provide clinical health education among pre-healthcare professionals through interacting with individuals with disabilities. © 2015 Elsevier Inc. All rights reserved.

Keywords: Health and wellness; Disability; Exercise training; Wellness coach

Obesity and the associated health complications have become a worldwide problem.^{1,2} Individuals who are obese are at a higher risk for several health conditions such as cardiovascular disease, diabetes, and mental health problems, which can significantly increase health care costs.^{3,4} Physical activity (PA) has been long recognized as one of the best ways to promote weight loss and sustain health benefits.^{5,6} However, as Carroll et al reported the prevalence of PA based on data obtained from the 2009–2012 National Health Interview Survey, adults with disabilities had nearly doubled the prevalence of physical inactivity (46.1%) when compared to adults without disabilities (26.1%).⁷

People with disabilities represent a substantial segment of our society.⁸ Preventative health and the wellness needs of

people with disabilities are often neglected due to barriers such as low economic status, lack of adapted equipment and facilities, lack of transportation, and a focus on the primary aspects of the disability. These barriers significantly increase the likelihood for becoming overweight or obese, as well as having negative health consequences associated with obesity and their disabilities. There are a number of community-based PA interventions and programs that focus on increasing PA level in people with disabilities.^{9–11} Such interventions and programs often focus on exercise benefits and functional improvements for a specific type of chronic health condition or disability.¹² In addition, as Rimmer et al indicated in their study, most exercise facilities and wellness programs in the community use the same exercise guidelines and equipment for all participants, regardless of disease or disability, which greatly reduces motivation and exercise adherence.¹³ Therefore, an exercise program that is specific to the needs of individuals with disabilities is necessary for them to adapt and maintain a healthy lifestyle. To address this issue, we started a wellness program for people with disabilities in the summer of 2012. The program had two aims. The first aim was to enhance student education

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through interacting with people with disabilities. The second aim was to improve wellness using PA and healthy diet through a time intensive approach for people with disabilities. The purpose of this study was to examine the feasibility and effectiveness of the wellness program as well as describe its potential to be translated to health education practice for pre-healthcare professionals. The results will focus on the data obtained from the fall academic term of 2013.

Methods

Student wellness coaches

The wellness coaches were students who registered for a class in the Department of Kinesiology that was designed to implement a wellness program for individuals with disabilities. There was no prerequisite course required. Students who were interested in this course were screened prior to admittance with a questionnaire. In the questionnaire, the students were asked to express why they were interested in taking the course, their career goal(s), as well as why they thought that this course would contribute to their career goal(s). The purpose of the screening questionnaire was to identify highly motivated students. Thirty-two students registered for the Fall 2013 academic term. The students had options to register for 1, 2, or 3 credit hours. The course requirements were adjusted based on the credit hour(s) each student signed up. Students who registered for 1 credit hour were required to complete three 1-h wellness sessions per week. Students who registered for 2 credit hours were required to complete three 1-h wellness sessions per week and one written wellness plan at the end of the semester. Students who registered for 3 credit hours were required to complete six 1-h wellness sessions per week and one written wellness plan at the end of the semester. In addition, all students were required to attend a 1-h weekly meeting with the instructor. The demographic information on the student wellness coaches is summarized in [Table 1](#). All student wellness coaches completed two 60-min preparation workshops conducted by the course instructor that focused on basic knowledge of disability and health, exercise science and communication skills with people with disabilities (for more detailed study objectives, please see [Appendix A](#)). The workshops were delivered by a combination of PowerPoint presentation and scenario-based activities to help students achieve the study objectives. At the end of the workshops, student coaches learned how to 1) start a conversation with participants, 2) conduct a wellness-screening interview using a standard questionnaire, 3) develop an initial goal-oriented wellness plan based on the principle of specificity, and 4) understand the need to be creative with their wellness plans.

Participants

Fifteen individuals between the ages of 28–74 years participated in a wellness program in the fall of 2013.

Table 1

Demographic information of student wellness coaches

Student wellness coaches	<i>n</i> = 32
Gender, M/F	14 M/18 F
Class year, %	
Freshman	0
Sophomore	25.0
Junior	40.6
Senior	28.1
Major, %	
Exercise & sport science	56.3
Biological science	28.1
Psychology	9.4
Nutrition science	3.1
Public health	6.3
Career goals, %	
Physical therapist	37.5
Occupational therapist	3.1
Physician	31.3
Physician assistance	15.6
Nurse practitioner	6.3
Other	9.4

Physical characteristics of each participant are presented in [Table 2](#). The table shows the initial semester when each participant started the program as well as their initial body mass index (BMI) and current BMI. Participants were recruited from the local community and word of mouth. There was no cost for them to participate in the program. No participants reported current participation in other exercise programs except one participant, who had additional weekly home therapy sessions. All participants signed a class contract and a consent form or assent form prior to the program and were required to obtain physician clearance if classified as more than low risk based on the American College of Sports Medicine (ACSM) risk stratification categories for atherosclerotic cardiovascular disease.¹⁴ All documents were approved by the Institutional Review Board.

Participant wellness screening

Every participant was assigned to at least 1 student wellness coach during each academic term. Participants went through an initial wellness-screening interview conducted by their coaches before designing and implementing individualized wellness plans. During the interview, general questions such as sex, date of birth, ethnicity, disability, health issues, presence of chronic diseases or symptoms, smoking history, medication usage, and PA level were asked. Participants and their coaches also identified wellness goals as well as developed initial exercise and dietary plans to address each wellness goal during the interview.

Intervention

The participants and their assigned student wellness coaches met for three 60-min wellness sessions per week at the Center for Physical Activity and Health in the

Table 2

Basic demographic and health information of participants

Participant no.	Age	Disability	Initial time of enrollment	Initial BMI (kg/m ²)	Ending BMI (kg/m ²)	CVD	Diabetes
1	30–39	Cerebral palsy	Summer 2012	36.5	28.3	N	N
2	30–39	Cerebral palsy	Summer 2012	44.0	43.7	N	N
3	40–49	Intellectual disability	Fall 2012	38.4	38.3	N	N
4	20–29	Down syndrome	Fall 2012	58.3	58.3	N	N
5	60–69	Stroke (right side)	Spring 2013	23.3	23.2	Y	N
6	30–39	Intellectual disability	Spring 2013	51.0	49.1	N	N
7	20–29	Down syndrome	Spring 2013	43.7	43.5	N	N
8	60–69	Stroke (left side)	Spring 2013	30.0	29.6	Y	Y
9	60–69	Knee replacement	Summer 2013	34.5	32.3	N	N
10	60–69	Spinal cord injury	Fall 2013	41.5	38.9	Y	N
11	70–79	Stroke (left side)	Fall 2013	38.8	38.6	Y	N
12	20–23	Cerebral palsy	Fall 2013	30.3	29.2	N	N
13	70–79	Peripheral arterial disease	Fall 2013	20.5	20.5	Y	Y
14	40–49	Intellectual disability & hearing/speech impairment	Fall 2013	42.3	41.9	N	N
15	40–49	Intellectual disability	Fall 2013	23.4	23.4	N	Y

Initial time of enrollment indicates the initial semester when each participant enrolled in the wellness program. Ending BMI indicates each participant's BMI in the latest semester. BMI, body mass index; CVD, cardiovascular disease.

Department of Kinesiology. The goal of the wellness coaches was to develop an individualized wellness plan incorporating both PA and healthy diet after detailed discussion and communication with their participants. All wellness plans were also developed to help the participants meet the Physical Activity Guidelines for Americans (Chapter 7: Additional Considerations for Some Adults; U.S. Department of Health and Human Services, 2008). During the sessions, the student wellness coaches implemented their wellness plans by facilitating exercise and discussing dietary habits with their assigned participants, as well as helping their participants establish healthy behaviors outside of the sessions. The coaches were supervised by the course instructor and three undergraduate supervisors in the Department of Kinesiology. In addition, all students attended a 1-h weekly lecture meeting with the instructor to discuss each participant's progress as well as issues the students had encountered. Different topics about disability and health were also covered during the weekly meeting. In addition to the weekly meeting, an online discussion forum was utilized for communications between the wellness coaches, the instructor, and the supervisors. The form was used to provide additional guidance and advice on the performance and progress that the wellness coaches made. The coaches were also encouraged to schedule appointments with the instructor for any questions or concern they had.

All the wellness plans were reviewed by the instructor and necessary changes were made. A typical exercise plan would include warm up, aerobic exercises, resistance exercises, functional training, stretching, and cool down based on the wellness needs of each participant. A typical diet plan consisted of general recommendations to improve overall diet consistent with federal public health recommendations (Dietary Guidelines for Americans 2010). The general diet plans were reviewed by a registered

dietitian. However, the participants were not provided with a personalized diet prescription. After wellness plans were developed, the participants and their coaches spent a majority of the session time following the exercise plans. They also met with the registered dietitian on an as needed basis to discuss goal setting, self-monitoring, and meal planning.

Evaluations

Student wellness coach performance

The clinical performance and interaction of student wellness coaches were monitored through field notes, photographs, and video clips taken by the instructor and the three undergraduate supervisors. Each week, the instructor and the three supervisors would meet and exchange notes and suggestions for each student. Photos and video clips were presented during each student weekly meeting as a way to provide feedback as well as a discussion point for the students to discuss their performance. Field notes were collected and reviewed at the end of the semester as part of the grading standard.

College-based student course evaluation

Each student wellness coach was asked to provide a final evaluation of the content and effectiveness of the class at the end of the semester. Results were summarized and used to determine the effectiveness of the program on student education.

Body mass index (BMI)

Body height and weight were measured, and BMI was calculated. Participants who were wheelchair users obtained their actual body weight with the assistance of a Hoyer lift and wheelchair weight scale (Cardinal DETECTO Scale Model No. 758C). For participants who could not

stand, body height was measured with a tape measure while the participants were lying supine on a padded exam table.

Individualized fitness measures

Individual fitness measures were used to evaluate progress of each participant. Measures were chosen based on each participant's capacity and were performed before and after each academic term. The following 3 examples are representative fitness measures conducted on participants with differing abilities: 1) One participant with CP performed walking on a body weight support treadmill with maximal volitional walking speed as the primary exercise. Outcome measures included changes in walking speed and distance. Qualitative observations were also made on the ability of the participant to walk with assistive devices. 2) Another participant with CP who was a wheelchair user performed swimming as the primary exercise. Time taken to swim 1 lap as well as number of breaks per session were compared. 3) Two participants with stroke had goals of reducing spasticity and improving walking gait on the affected arm and leg. Field notes and photographs were made on the observed situations to monitor the progress of this participant.

Program compliance

Program compliance was assessed by examining the attendance of participants and student wellness coaches.

Results

All the data presented here were obtained from the Fall 2013 academic term. The program had 88% compliance (based on participant and student attendance at the 3 weekly sessions).

Student clinical performance

Based on the field notes, all student wellness coaches demonstrated improved clinical skills such as taking vital signs and conducting fitness and functional tests and measures. Increased confidence toward working with participants with different disabilities and providing wellness advice to the participants were also observed in the wellness coaches.

Final student course evaluation

Based on the results from the college-based course evaluation, the course was rated 4.8 on a 5.0 scale. There were 87.5% students who strongly agreed and 12.5% students who agreed that this course prepared them for their future career. All students agreed that the course introduced them to different disabilities as well as helped them to understand the barriers and health issues that individuals with disabilities face. The feedback obtained from students was very positive. Below are some examples.

"I learned a lot by being able to actually work with people with various disabilities. The content of the class is invaluable, because there are not many other opportunities to be able to do these same types of activities."

"Really great class for students seeking health care careers. I enjoyed being able to discuss my plans for my participants with the class and receiving feedback."

"The class content was great. I learned so much about how to work with patients from all different kinds of backgrounds and figure out how to do exercises in many different ways. It will definitely help me in the future as a PA."

"The information presented for this class was very helpful and interesting. Even though I may have learned some of the information in previous classes, being able to apply it, for example on the participants with disabilities, made the learning experience much better."

Body weight, BMI, and other outcomes

All participants experienced weight reduction or maintenance although not all of them identified weight loss as their wellness goal (Fig. 1). The average weight loss after 3 months of the program was 2.0 ± 2.9 kg reported as mean \pm SD, ranging from 0.0 to 9.0 kg. The average BMI reduction was 0.7 ± 1.0 kg/m², ranging from 0.0 to 3.0 kg/m².

Table 3 shows each participants primary wellness goal(s), primary exercise performed, primary measures, and primary outcomes. All participants demonstrated improvements in fitness and functionality. For example, a

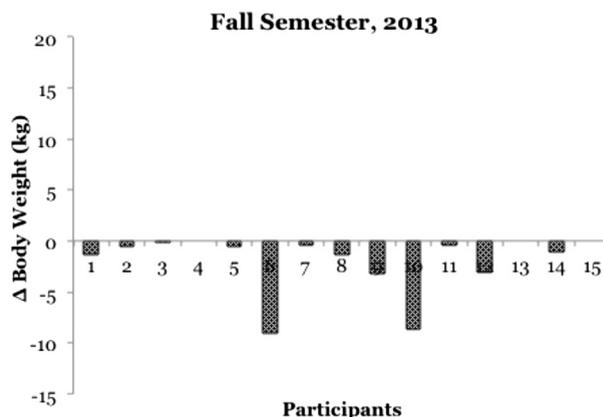


Fig. 1. Changes in participants' body weight before and after the wellness program in fall, 2013. All participants lost or maintained their body after 3-month participation.

Table 3
Wellness goals and plan for each participants

Participant no.	Primary goal(s)	Primary exercise	Primary measures	Primary outcomes
1	Weight loss improve swimming	Swimming	Body weight, swimming distance/duration	Reduced weight, increased swimming distance, and reduced break
2	Weight loss enhance mobility	Body-weight support treadmill	Weight & walking distance/duration	Reduced weight, increased walking distance/duration
3	Weight loss (defined by the caregiver)	Walking & weight training	Body weight	Reduced weight
4	Weight loss (defined by the caregiver)	Stationary cycling & weight training	Body weight	Maintained weight
5	Reduce spasticity driving	Stretching and movement training	Range of motion & observation on spasticity	Increased range of motion & reduced spasticity
6	Weight loss	Walking & weight training	Body weight	Reduced weight
7	Weight loss (defined by the caregiver)	Walking, dancing, & weight training	Body weight	Reduced weight
8	Increase range of motion enhance mobility	Stretching and assisted walking	Range of motion & observation on walking confidence	Increased range of motion & improve walking confidence
9	Weight loss	Walking & weight training	Body weight	Reduced weight
10	Weight loss	Seated aerobic exercise and resistance training	Body weight	Reduced weight
11	Enhance mobility	Walking & functional training	Walking distance & observation on walking confidence	Increased confidence in walking
12	Weight loss	Jogging & weight training	Body weight	Reduced weight
13	Increase walking distance	Walking & weight training	Walking distance/duration	Maintained weight
14	Weight loss (defined by the caregiver)	Walking, weight training, obstacle course	Body weight	Reduced weight
15	Increase activity	Walking, weight training, obstacle course	Observation on sweating rate	Maintained weight

participant with CP had difficulty walking due to the nature of disability compounded with a fear of falling. Before coming to the program, the participant’s primary mode of mobility was a power wheelchair and occasional use of crutches. One of the participant’s wellness goals was to walk further, which could in turn increase the energy expenditure. As part of the individualized exercise plan, the participant performed walking on a body weight support treadmill. The body weight support harness served as a safety net to prevent the participant from falling. After 3 months of the Fall 2013 academic term, the participant increased walking distance approximately from 0.3 miles to 1 miles and walking speed from 1.2 mph to 1.4 mph. Another participant with CP completed swimming as the primary exercise. During each session, the participant began by practicing fundamental techniques such as breathing, arm strokes, and leg kicking exercise followed by a actual “freestyle” swim session with support of a swim float around the participant’s chest. Fig. 2 shows the improvement the participant made after 3 months. The participant improved swim time per lap (25 yards) from 3 min to 1.5 min, decreased by approximately 1 min and 30 s. This participant also increased the number of laps being performed per day before signs of fatigue occurred, from 4 to 8 laps. One participant with PAD had walking and balance training as the primary exercises. After 3 months, the participant showed increased walking duration

and improved stability and confidence during walking. Two participants who had a stroke focused on improving functionality. The exercises they performed were primarily based on the recommendations of their physical therapists and reinforced by the student wellness coaches. After 3 months, both participants reported reduced spasticity, as well as several functional improvements such as being able to lay on the stomach, picking up objects from the floor, and better balance while walking. The improved

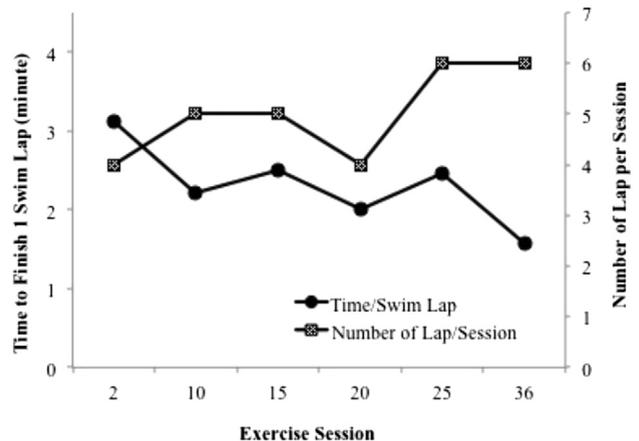


Fig. 2. Changes in time to finish 1 swim lap and number of lap per session on one participant with cerebral palsy before and after 3 months of the wellness program in fall, 2013.

functionality was determined through field observations and feedback from the participants.

Safety

No injuries related to program participation were reported. Most participants experienced mild muscle soreness, which was considered to be a regular response of exercise training. Exercise intensity was adjusted to allow for recovery.

Discussion

This study examined a university-based wellness program designed for individuals with disabilities. The program had no safety issues. Student wellness coaches and participants also showed high compliance and reported high satisfaction with the program. Importantly, all students demonstrated improved clinical interaction toward working with the patient population and all participants showed improvements in fitness and functionality. Similar improvements in fitness and functionality have been shown with programs that incorporated physical activity for people with disabilities.^{15–17}

Feasibility of the program

The wellness program described in this study is now in its sixth academic term of continuous operation, with a commitment for the next academic term. The major limitation to wellness or exercise programs is the financial burden of establishing and maintaining the programs. Typical wellness programs are based on research grants or user fees. This is especially important for wellness programs for people with disabilities, as the costs are more extensive.^{13,18} The current program made use of a \$5000 grant to get the program started, which was used for program development and reimbursement of participants' travel expenses. The key to the current program is that it utilizes pre-healthcare professional students who received academic credit and available university resources, which in turn provides economic feasibility and sustainability. While a cost analysis was not performed, the program has the potential to be sustainable within the budget of the participants and the University. This type of program can also be implemented in non-University settings such as the hospitals and local wellness centers where exercise equipment, space, student volunteers, and supervision of students by a health care professional are available. Facilities that offer such a program can use it as a way to help enhance the clinical experience of pre-healthcare professionals as well as engage in community service. Currently, there are many service-learning types of programs such as the Physical Activity Mentoring Program in University of Wisconsin—La Crosse and the Activities Recreation & Care (ARC) for Individuals with Developmental

Disabilities in the University of Southern California available for individuals with disabilities. While our program uses very similar approach, it is distinct by its session frequency (3 times per week) as well as the participant involvement in the wellness plan designing process. The program has several benefits. First, each participant receives more personal attention and thus allows his/her session time to be utilized more efficiently. The wellness coaches are pre-healthcare professional students who are eager and enthusiastic in gaining clinical experiences. Their attitude can be used as a motivational tool for participants to stay active. Second, the program uses wellness coaches to implement an individualized approach toward each participant, which made each session time more effective. Because participants received more personal attention with this approach, any physical issues such as muscle soreness or illness, as well as emotional issues such as feelings of tiredness or concerns can be addressed immediately. Third, the program uses adaptive equipment that allows each participant to exercise at the greatest capacity. The coaches were also able to establish home-based exercises that were safe for the participants to do at home. In addition, the program emphasizes the concept of exercise as a gateway to healthy eating. Although exercise and functional training have been the main focus of participants and coaches during each session, it is also feasible if participants want to change their focus on healthy diet.

Issues

Several issues have been observed and need to be resolved in order for the program to be sustained and expanded to reach more people with disabilities. The first issue is transportation. Transportation is the major barrier for some of the participants. Many participants with physical disabilities are wheelchair users and utilize public transportation systems to travel. Unfortunately, these systems are often impractical due to unreliability in precise pick-up times. Currently, the participants provide their own transportation to the program but several incidents such as mechanical breakdown of a wheelchair van, unavailability of public transportation, and scheduling conflicts with parents/caregivers have occurred. These incidents have prohibited some participants from attending the program regularly.

Secondly, the program is based on an academic calendar and is not available in between academic terms. The program is currently offered in spring, summer, and fall terms and has approximately 3-week break in between each term. It was noticed that some participants gained weight or didn't continue their exercise plans when they were outside of the program. It's important to have participants stay active and continue healthy eating habits when the program is not available to them, but this can be especially problematic for people with ID because some of them cannot comprehend the importance of continuing a healthy

lifestyle during breaks. Future programs should address this issue by providing education workshops for the caregivers or family members to help with the healthy lifestyle adherence or incorporating methods such as assigning homework for the participants with ID to complete during the break.

One limitation of this study is the difficulty in standardizing outcome measures due to the diversity of students and participants served. This paper presented some preliminary data and qualitative observations in order to demonstrate the feasibility of the wellness program. It also showed the effectiveness of the program in student education and participants' wellness. A unique aspect of this program is the incorporation of exercise and nutrition. Although nutrition has not been the main focus, this program may have successfully promoted aspects of healthy eating among the participants. Future studies will need to examine specific diet outcomes to demonstrate any improvements in eating habits. Another limitation of this study is the lack of the measures of trustworthiness on the field notes, photographs, and video clips recorded by the instructor and the student supervisors. The main purpose of these observational data was to provide feedback to the wellness coaches, and they could then adjust their clinical performance based on the feedback. Future studies will need to apply a standardized method to examine the reliability of these observational evaluations as well as incorporate quantitative evaluations on student performance. This program has been offered for 7 academic terms and will continue to be offered. Our initial step of the plan was to establish and implement the wellness program; therefore, more focus has been put on ensuring the feasibility and safety of the program as well as providing adequate training for student wellness coaches. Our next step will be to test the effectiveness of the wellness program by focusing on specific outcomes for participants and student wellness coaches as well as develop a systematic procedural manual to export such a program to places that are in need.

Conclusion

This study demonstrates the feasibility and effectiveness of a wellness program for individuals with disabilities using a student wellness coach approach. The wellness program has the potential to be used as a health education practice model by providing valuable hands-on experiences for pre-healthcare professional students. It offers a unique opportunity for students to practice interacting and communicating with a clinical population, as well as provides students with a real world opportunity to create and implement an actual wellness plan. Also, the program provides an inclusive environment where every person of all abilities can exercise and discuss healthy behaviors, which potentially helps to address a critical community need: improve the health of all individuals.

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Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.dhjo.2014.12.003>.

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