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Implementation of an Exercise Program in Assisted Living

Cherise A. Norby

IMPLEMENTATION OF AN EXERCISE PROGRAM IN ASSISTED LIVING

by

Cherise A. Norby

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Signature Chrisie A Norby

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Table of Contents

Abstract

Assisted living facilities are increasingly becoming a popular option for aging individuals. One thing found lacking in these facilities is a structured exercise program. In a review of literature, it was found that strength training programs have resulted in an improvement in elders' functional performance. It has been shown that an older adult can successfully perform strength training exercises. Strength training exercises can add muscle, increase strength, and enhance the elders' flexibility. This improved functional performance plays a significant role in the elders' ability to maintain their independence with ADLs (activities of daily living), which may result in a better quality of life.

A strength training exercise program for assisted living individuals was developed based on extensive literature review and presented to assisted living staff for implementation. The goal of the developed program is to maintain or even improve the elderly person's gait, strength, and/or mobility to maintain their independence for as long as possible and to enhance their quality of life.

Introduction

The principle "use it or lose it" in regards to health and fitness basically implies that if a person doesn't get enough physical activity, they will get weaker. Although the following is not an inclusive one, the lack of physical activity has an impact on a person's heart, bones, muscles, and mental well-being. When a person in their retirement years does not utilize their muscles, this can have an effect on their balance and coordination which places them at an increased risk for falls.

The Centers for Disease Control and Prevention (CDC) (2010) denotes the following in their overview of falls:

> Each year, one in every three adults age 65 and older falls. Falls can lead to moderate to severe injuries, such as hip fractures and head traumas, and can even increase the risk of early death. Fortunately, falls are a public health problem that is largely preventable. (para. 1)

In addition to these facts on falls. the direct medical costs of falls in 2000 totaled a little over $19 billion (CDC, 2010, "How big is the problem?"). The medical cost and the potential injury highlight the significant impact that staying physically active has on an aging individual.

Sometimes seen in advanced aging, people start to move less as activities that involved a lot of movement are replaced with activities that involve a lot of sitting, and it was the movement activities that kept the elderly person's balance and coordination in good shape. Staying physically active with a regular exercise program is one way to utilize muscles in a manner that will maintain or improve balance and coordination, decreasing the risk of falls.

Purpose of the Project

The purpose of the project was to develop a strength training exercise program at an assisted living facility. The exercise program was developed to address the detrimental effects falls may have on the elderly. The exercise program was introduced to the staff caring for the residents of an assisted living facility. As a person's balance worsens, there tends to be a reduction in the level of movement activities associated with activities of daily living. Activities that may take the place of movement activities involve more sedentary activities such as reading, watching television, playing cards, and hand-crafting items. The activities that involved a lot of movement like yard work, house work, and even cooking, are no longer necessary for individuals who have chosen to move into an assisted living facility. Moving into an assisted living facility does offer services to individuals that will allow them to maintain their independence, but the luxury of having some services provided such as laundry services, housekeeping, and meal preparations can also have a negative effect on one's muscle strength. This is represented by the "use it or lose it" principle.

A vicious cycle can result as a direct cause of lack of physical activity. A decrease in physical activity over the years can result in decreased balance and coordination, in turn resulting in a person choosing to decrease their physical activity due to a fear of falling because of decreased balance, which may result in further deterioration in balance and coordination. The end result is a person who has difficulty walking without assistance who chooses not to participate in activities outside of their living facility due to a fear of falling. Poor balance then has an effect on the person's quality of life, placing them at increased risk of sustaining moderate to severe injuries from their actual risk of falling, and contributes as a statistic to the billions of dollars that are spent on the medical costs that are a direct result of an injury from a fall.

The goal of a strength training exercise program would be to maintain or even improve a person's gait, strength, and/or mobility in an assisted living facility in order to maintain their independence for as long as possible and to enhance their quality of life. In a review of literature, it was found that strength training programs have resulted in an improvement in elders' functional performance, and that older adults can successfully perform strength training exercises. The benefit of strength training programs includes the addition of muscle which increases strength, which may result in better balance which can reduce the fall risk and result in a better quality of life for an aging individual.

Significance of the Clinical Problem

Our population is aging fast with an increasing number of baby boomers becoming senior citizens, adding thousands of older men and women who may sustain a fall. Greenblatt (2007) stated that "for the next 18 years, a member of the baby boomer generation – the 78 million Americans born between 1946 and 1964 – will reach that age (62) every eight seconds" (p. 686) The National Institute on Aging (2009) introduces the following concepts:

> Many things can make you more likely to fall. Your eyesight, hearing, muscles, and reflexes might not be as sharp as when you were younger. Diabetes, heart disease, or problems with your thyroid, nerves, or blood vessels can affect your balance. Some medicines can cause dizziness. ("Falls and Fractures," p. 1)

Any of the contributing factors listed, either individually or combined, may lead to an increased fall risk, but the aging population can take an active part in modifying the fall risk by staying physically active with a strength training exercise program. A strength exercise program may make an elderly person stronger by improving muscle strength which may improve balance and decrease the potential for a fall.

Falls are serious at any age, but "if you're elderly, it can lead to disability and a loss of independence" (U.S. National Library of Medicine, 2010, p. 1). A fall can change an elderly person's life depending on the seriousness of the injury ranging from the temporary need for long term care (LTC) placement for rehabilitation or permanent placement if rehabilitation was unsuccessful or the need for increased assistance if a more traumatic injury occurred such as a traumatic brain injury. Injuries sustained from a fall places an increased demand on nurse staffing needs caring for elderly individuals recovering in the hospital or a LTC facility from a fall related to injury. Currently, "the U.S. is in the midst of a shortage of registered nurses (RNs) that is expected to intensify as baby boomers age and the need for health care grows" (American Association of Colleges of Nursing, 2010, para. 1).

According to the CDC (2010), "among community-dwelling older adults, fall-related injury is one of the 20 most expensive medical conditions" ("How costly are fall-related injuries," bullet 3), and "by 2020, the annual direct and indirect cost of fall injuries is expected to reach $54.9 billion (in 2007 dollars)" (CDC, 2010, "How costly are fall-related injuries," bullet 2). The significance of developing a strength training exercise program in an assisted living facility may have a significant impact on attempting to prevent falls. Fall prevention may assist in reducing the expense of health care incurred by the individual and the government. Fall prevention may also have an impact on the nursing profession's workforce, utilizing their skills for healthcare maintenance and prevention rather than fall aftercare.

Lastly, having a "strength training exercise program can be successfully implemented in assisted living facilities and is associated with significant improvement in functional performance" (Brill et al., 1998, p. 58). The most important aspect of the project is to have a positive impact on the quality of life of the residents in an assisted living facility by providing

them with a developed program that they can participate in, improve the elderly person's balance and ultimately reduce the potential for falls.

Conceptual/Theoretical Framework

Early in the literature review as research was performed on what type of exercise program would be the most beneficial for residents living in a community setting, it was found that a common, overall goal of all the studies was to improve their function. Improving the functional performance in participants was found to have a direct impact on their ADLs which in turn may affect their quality of life. Being able to improve the functional performance of a person's ADL also impacts their balance, which is a key factor to preventing falls and their negative consequences.

The population that lives in assisted living facilities typically is an older population, and balance impairment is an issue that is more commonly seen in this age group. Tarr and Drnach (2008) established the following about balance:

> Balance is a comprehensive task involving the reception and the processing of sensory input and the ensuing musculoskeletal actions needed to maintain an upright posture during a variety of developmental positions, including sitting, static bipedal stance, or locomotion. The ever-changing internal and external environmental condition that a person experiences on a daily basis stress the systems responsible for maintaining balance essentially from birth until death. (para. 1)

Utilizing a strength training program requires the body to move or maintain a certain posture which has a positive effect on one's balance, a complex and coordinated response of the neuromuscular and musculoskeletal system.

A person's balance can be examined by a number of individuals ranging from an assisted living personal care assistant, an activity director, a primary care provider, to a physical therapist. Objective information is assessed by observation, and this information can be used to evaluate a person's risk for falls. One of the most effective ways to comparatively monitor a person's balance is to use one of the available tools that have been developed. Four common balance examination tools are the Berg Balance Measure, the Timed "Up and Go" (TUG) Test, the Five Times Sit to Stand Test (FTSST), and the Tinnetti Assessment Tool.

The Berg Balance Measure, also called the Berg Balance Scale, is a performance-orientated assessment tool to identify balance impairment. A person is asked to complete fourteen tasks while an examiner rates their performance on each task. Elements of the test are representative of daily activities that require balance, such as standing, sitting, stepping, and leaning forward. Each element is scored on a five point ordinal scale which, once summed up, identifies areas of impairment.

The Five Times Sit to Stand Test quantifies the person's ability to perform a transitional movement (standing from a sitting position), assessing their leg strength and balance simultaneously. Whitney et al. (2005) noted, "Slower sit-to-stand times have been related to greater deficits in instrumental activities of daily living and to balance disorders in older adults" (p. 1036). The optimal score for the FTSST for older adults is 14.2 seconds (Whitney et al., 2005).

The Tinnetti Assessment Tool is an easily administered task-performance test that assesses the person's balance and gait. Scoring is completed on a three point ordinal scale with individual scores combined to form three measures: an overall gait assessment score, an overall balance assessment score, and a gait and balance score. The Tinetti rates the ability of an

individual to maintain balance while performing ADL tasks. Kegelmeyer, Kloos, Thomas, and Kostyk (2007) found that the Tinetti has been shown to have the best predictive validity for fall risk in the elderly (para. 4) and is one of the most frequently used tools in LTC and assisted living facilities.

The Timed "Up and Go" Test is a timed walking test that also includes sit to stand transfers, allowing for assessment of balance with transitional movements and speed of walking. Wall, Bell, Campbell, and Davis (2000) note that people who complete the test's tasks in less than 20 seconds have shown to be independent in ADL, in contrast to individuals who are dependent in most activities of daily living and mobility skills require 30 seconds or more to complete the tasks (p. 109).

Key Definitions

Assisted living is a long-term care option that provides housing along with supportive services and health care as needed. The Assisted Living Federation of America (2009) describes assisted living communities as home-like environments that promote dignity and independence with amenities available (such as meals, housekeeping, transportation, and laundry) or provided for a fee (such as medication management/assistance and medical treatments). Personal care is provided based on the needs and desires of each individual by assisted living staff. Assisted living facilities also offer a variety of activities and social gatherings, with the convenience of its residents being able to retreat to the privacy of their own living quarters. ("What is Assisted Living?" para. 1-3)

According to Senior Living Residences (2010), the average age of an assisted living resident is 84. They are independent and active, take advantage of services provided by the assisted living's personal care attendants, benefit from medication monitoring and reminders,

and thrive on the social culture of their community ("Average Assisted Living Resident," para. 1). All these components together are complimentary to the individual needs of each assisted living resident.

One additional term to define is activities of daily living (ADLs), which includes self-care activities that are normally done in daily living such as bathing, dressing, grooming, oral hygiene, walking, transferring, and eating. The inability to perform any ADLs has an impact on a person's health and well-being and may affect quality of life.

Synopsis

As the 78 million that comprise the baby boomer generation continue to age, their likelihood of sustaining a fall increases with a decrease in physical activity. When an elderly person moves into an assisted living facility, activities may be replaced that helped maintain their balance such as housework and mowing the lawn with more leisure activities such as reading or playing cards. Developing a strength training exercise program to enhance their balance may have a positive effect on their quality of life, allowing them to continue to independently perform their own ADLs and staying active. Keeping the senior population safe may also have an impact on the current nursing shortage by possibly decreasing the demand for nurses who may be needed to care for elderly who have sustained an injury from a potentially preventable fall.

Review and Critique of Related Studies

The primary goal of reviewing evidence based practice literature for this project was to find an activity that resulted in an overall improvement of function for the elderly population residing in assisted living facilities. Brill et al. (1998) defined the purpose of their study as one that will "determine the effect of a group-based free weight strength training program to improve strength and functional performance among residents" (p. 57). Baum, Jarjoura, Polen, Faur, and

Ruteck (2003) state that "a common goal for frail elderly patients in the community and in long-term care (LTC) facilities is to maintain or improve function" (Abstract section, para. 1). Baum et al. (2003) also discuss the following:

> Low levels of physical activity and lower extremity weakness have been identified as risk factors for functional status decline and falls. Many dependent frail elderly entering a LTC facility have developed disability and dependency despite maximum medical therapy for chronic diseases. Elderly people with chronic diseases often decrease their physical activity. Less activity contributes to strength loss, which begins a downward spiral. Immobility has a number of physiologic and psychologic consequences, including muscle atrophy, osteoporosis, impaired balance, orthostatic hypotension, and decreased cardiovascular and pulmonary reserve as well as an increase in depression, insomnia, falls, and pressure ulcers. (Abstract section, para. 1)

Baum et al. made the above comment in regards to elderly entering a LTC facility, but in this author's experience working with elderly clients in a LTC facility and in a basic care facility (which would be comparable to an assisted living facility in regards to the person's physical capabilities), residents who reside in both types of facilities would benefit from an exercise program.

What is already known is that "frailty is no longer considered an inevitable consequence of aging. Research studies have found that strength loss, which is especially common in the oldest old, can be improved with exercise" (Baum et al., 2003, Abstract section, para. 2). What is not known is the absolute best way to prevent strength loss in an aged population. Many studies have been conducted on the use of weights, thera-bands, walking programs, aerobic programs, individual physical therapy, and group-based programs. Each study showed that there

was a benefit to the participants in any type of program. It was found that functional performance was improved the most in strength training programs.

The designs of the studies conducted generally fell into one of the two following categories: a randomized controlled study or cluster sampling where the participants were divided solely by the facility where they resided. Out of 14 studies reviewed, Sung (2009) was the only one that conducted a small pilot study to determine the feasibility of his study, with the results demonstrating that the planned exercise program was feasible (p. 345). Otherwise all the other studies were pilot studies themselves.

The number of participants in each study ranged from 10 individuals up to 84. What is important to recognize in regards to the participants is their age, which is reflective of the age of individuals that are residing in assisted living facilities. The mean age of the study participants in the pilot study conducted by Wallmann, Schuerman, Kruskall, and Alpert (2009) was 74 years (p. 421) which varied from the 84.6 year age in the study by Resnick, Wagner, and House (2003, p. 34).

Researchers conducted the majority of the studies in assisted living facilities with the exception of Baum et al. Their study included a few participants from the nursing home (five individuals) with the remainder from the assisted living (fifteen individuals). The baseline data obtained at the start of the study demonstrated that both the nursing home residents and the assisted living residents were comparable since the study's criteria selected nursing home individuals with higher functioning, which is similar to the physical functioning of assisted living residents (Baum et al., 2003, Results section, para. 1). This type of participant selection provided more specific results comparable to individuals who reside in an assisted living facility.

Most of the studies had a definitive list of inclusion and exclusion criteria. The main inclusion criteria was participants had to be fairly independent in their ability to ambulate. The exclusion criteria was fairly consistent with cognition being one of the most common. If a participant was unable to follow a sequential command or had a diagnosis of either a neurological or psychological disorder, they were excluded. The other common exclusion criteria was, with the exception of Resnick et al. who did not exclude any assisted living resident who had a physical or cognitive impairment, a history of a heart attack or a stroke in the six months preceding the study.

Some studies commented that a meeting was held with the study participants and/or their significant others and family members, only Resnick et al. (2003) noted that "before the exercise program began, clearance was obtained from every participant's primary health care provider" (p. 35).

Although randomization was not conducted with all study participants, generally there was a study group that received exercise instructions and a control group that was encouraged to not participate in any additional physical activities. Studies consistently noted how the exercise programs were implemented. A variety of professions were represented in regards to whom was conducting the exercise sessions. The professions identified were: physical therapists; exercise physiologist; long-term care staff to activity staff, including activity staff, and nutrition science students. Commonly, in cases where the exercise sessions were conducted by anyone other than individuals with a medical background degree, the staff was trained by a professional person ensuring the proper techniques were presented. This also ensured that the study participants were being instructed on the same techniques and procedures.

Frequency and duration of the exercise sessions varied from 30 minutes (which was the most common) to one hour. No matter what the length of time, the repetitive nature of the sessions remained consistent. Each study's exercise session developed its own exercise program, but the same program was done at each session. What did fluctuate was the encouragement of the participants to progressively increase the weights that they were using with the exercises. "Some participants were able to double their wrist/ankle weights used as the weeks progressed but no one exceeded weights totaling 5 pounds" (Wallmann et al., 2009, p. 422). Some studies noted that this was done either on a pre-determined schedule or from obtaining feedback from the participants.

Simple, portable, and inexpensive equipment was used in the implementation of exercise programs. Some of the items used in the studies included soft ankle weights, soft wrist weights, therabands, weighted hand-sized balls, beach balls, and dumbbells. The weights of some of these items ranged from one to four pounds.

The frequency of exercise sessions ranged from two to three times per week to five times per week. Many of the studies offered sessions more than once a day, with the participant needing only to attend one session, in order to accommodate the participant's daily schedule of other personal activities of interest. Resnick et al. (2003) conducted their exercise session five times per week. Their study noted "the exercise intervention was a group-exercise program that included strengthening exercises three days per week and balance training two days per week" (p. 35). There was an overall physical improvement noted in participants of all studies, and there were no studies conducted exclusively on the outcome based on frequency of participation.

Attendance in the exercise programs was generally noted to be mandatory in order for the participants to receive the session instructions and in order to be considered an active participant

in the studies' results. Most of the studies kept attendance records of the study participants. All of the studies used some kind of tool that measured the participants' physical function prior to the implementation of an exercise program and after the study was completed; there were some measurements conducted at other pre-selected intervals such as three, six, and nine months. As previously introduced, the most common measurement tools used in the studies were the Berg Balance Scale, the Timed "Up and Go" (TUG) Test, the Five Times Sit to Stand Test, and the Tinnetti Assessment Tool. Results are useful when comparing the individual improvement of each exercise participant. The studies reviewed all used more than one assessment tool to measure the physical performance of the participants. Baum et al. (2003) note that the use of multiple measurement tools "has greater power than univariate testing when the intervention effects on the multiple outcomes are consistently in favor of the intervention" (Statistical Methods section, para. 3), thus allowing for better documentation of the exercise implemented.

Some studies constructed their own measurement tool that was used specifically in their study, but when reviewing the studies, it was found that even the specially designed measurement tools were developed to measure the physical functioning of the participants. The tools measure a participant's strength, range of motion, gait and balance, which are measures of physical function. The study by Baum et al. (2003) chose measurement tools that had already been developed, noting that "all of the performance tests have been validated in older populations and have good interrater reliablility" (Outcome Measures section, para. 1). They included the Folstein mini-mental exam (MMSE), the TUG test, the Berg Balance Measure, and a physical performance test. A mental status examination was not examined for this project as the population targeted for the implementation of an exercise program were residents of assisted living facilities, with that population generally being more cognitively intact.

When researching the validity of the most common measurement tools used in the studies, Kegelmeyer et al. (2007) found that "the total score of the TMT (Tinetti Mobility Test) is a reliable and valid tool for assessing the balance and gait status and fall risk of individuals" (Conclusion section, para. 1). Although Kegelmeyer's study was specifically focused on individuals who were in the early to middle stages of Parkinson's, the TMT examination tool is a beneficial tool that can be used by any healthcare professional when needing to determine a person's risk of falling, as it was noted to be "a reliable and valid clinical test to measure balance and gait in elderly people and some patient populations" (Kegelmeyer et al., 2007, para. 4).

Along with using the objective, clinical measurement tools, one study had the participants provide their subjective thoughts on their health perception. In the 1998 study by Brill et al., the "subjects answered Likert scale questions about their perceived general health" (p. 60). The limitation to this type of self-reporting questionnaires is the final results are generally reported as an improvement. These results can be strongly biased because the participants have been provided information on the benefits of participation in an exercise program. Overall, their strength and balance may not have changed, but they physically feel better from actively having some physical activity which may contribute to higher ratings on a Likert scale.

The approaches to analysis varied significantly from measurement tools being administered blindly by physical and occupational therapists (Baum et al., 2003) to assessments being completed solely by the study's principle investigator (Brill et al., 1998), which might be critiqued as having some biased results. Although nutrition students who have no specific educational training on physical performance collected the information, there was consistency in how they implemented the exercise program; each nutrition student was specifically trained by one physical therapist.

The findings of all the studies consistently noted that there was an improvement in the functional performance of the exercise participants. Regardless of the type of measurement tool utilized in each study, "for each outcome, the intervention effect was positive in favor of exercise" (Baum et al., 2003, Results section, para. 2). All of the reviewed studies consistently noted that it was common to see a number of study participants in the control group drop out of the study. The control group had little incentive or benefit as compared to the exercise participants. The loss of members in the control group did not have a major effect on the outcome findings of the studies, since improvements in functional performance were noted with the active participants after comparing their performance measures before and after the exercise intervention was implemented.

The study by Brill et al. (1998) published the following in regards to support of an exercise program:

> If residents of assisted living facilities are afraid of falling, they may limit their activities and stay in their rooms all day except for attending meals. They may stay in their beds for a majority of the day, thus contributing to their muscle deconditioning. (p. 66)

The majority of the literature review focused primarily on the proven improvement in functional activity that occurs with participation in an exercise program, but it is dually important to note the additional benefit that exercise programs have, which is an improvement in their physical capabilities related to a decreased fear of falling. "Fear of falling can be defined as a lasting concern about falling that leads to an individual avoiding activities that they are generally capable of doing" (Brill et al., 1998, p. 66). Confidence is gained through participation in exercise programs, and this gained confidence has an impact on reducing the tenants' fear of falling.

None of the studies directly measured if there was a reduction in the individual's use of assistive devices, but Brill et al. (1998) did report that they did have a few study participants who were able to switch from the use of walkers to the use of a cane (p. 67). That type of change in one's need for assistive devices shows that there must have been an improvement in a person's strength and balance. The researchers noted, "The importance of the significant improvement in these tests relate to the improvement in daily tasks" (Brill et al., 1998, p. 67).

The finding that led to developing an exercise program that can be implemented by assisted living staff was noted in a couple of studies. This finding was the lack of motivation and adherence to participate. Resnick et al. (2003) found that the biggest barriers to the success of participation in an exercise program were the lack of motivation and willingness to come to the scheduled sessions (p. 38). The negativity of these concepts lead to a strong foundation for the development of an exercise program that is actively led by assisted living staff, not for the development of an individual exercise program which lacks motivation. Westcott and Simons (n.d.) stated that "team building and the social interaction complemented exercise adherence and made exercising fun for these seniors" (p. 4). This is an additional supporting statement for development of a group exercise program.

In conclusion, it was found that physical exercise does increase the participant's strength, which is vitally important for assisted living residents when wanting to maintain their independence. Sung (2009) states the following:

> Appropriate physical exercise interventions in older people can reverse functional limitations, help them maintain independent living by improving muscle strength and balance....Physical activity and exercise offer the greatest opportunities for older people

to extend the period of active independence and reduce functional limitations. (pp. 344-345)

Methods

The main goal of this independent project was to develop an exercise program that would be beneficial to assisted living residents. This was accomplished through literature searches and extensive review of the literature, along with visualization of exercises utilized by higher functioning nursing home residents.

The literature search began while enrolled in NURS 502, Evidence for Practice. Literature searches were conducted online utilizing the Harley E. French Library of the Health Sciences at the University of North Dakota, Grand Forks, ND. Most of the studies were found through CINAHL and needed to be requested through the Interlibrary Loan system, which was very effective and efficient.

The results of the literature search resulted in a few articles that were specific to exercise programs using free weights in assisted living facilities. Assisted living is a growing business, and currently there are no regulations that mandate standards of care that needs to be provided, which may have been a factor to the limited search results. Search terms utilized were "exercise", "weights", "therabands", "assisted living", "elderly", "group exercises", and "ADLs", alone and in different combinations. Some of the same articles came up using different search terms. When search results become circular, it usually means the literature search is complete.

After completing the literature search, a review of the literature was conducted in more detail. In the "Background" section, it was noted that in the most current study by Wallmann et

al., published in 2009, there were two other studies included in Wallmann's publication that were also found.

How will the development of an exercise program in assisted living have an impact on clinical practice? This author had previously worked in a LTC facility for 12 years, having witnessed first-hand the benefits of rehabilitation in new admissions. A great number of these individuals were able to transfer from the LTC facility to an assisted living facility or back to their own homes after regaining their strength from active participation in physical or occupational therapy. Assisted living facilities, as previously stated, are not currently regulated by the federal government, so there are no standards established that mandate residents' participation in programming that may allow the residents to maintain their independence. It is not unusual for residents in an assisted living facility to lose their physical functioning from relying on the assisted living staff that care for them. The hope is that assisted living managers see the significant impact that physical exercise has on the well-being of the residents and implement a routine exercise program to assist the residents to either maintain or improve their quality of life.

Observation hours were completed alongside of an occupational therapist, a physical therapy assistant, and a restorative aide at a rural rehabilitation and LTC facility in rural North Dakota. The observation hours assisted in the development of an exercise program that can be utilized by assisted living residents. The exercises taught to LTC residents to improve their strength and balance was observed. Different techniques adapted to the person's capability were also observed as well as the social benefit that the participants received when they exercised with the professional staff.

Results

The facility chosen for the project was a newly built facility that recently opened in 2009. The staff and management team was very welcoming and enthusiastic regarding the exercise program for the residents. The exercise program was first presented to assisted living managers and the activities director along with a summary of the literature review regarding different exercise programs as well as the reasons why certain exercises were selected to be included in the exercise program. Information was presented on supervised walking programs and numerous free weight exercise programs, finding that the exercise programs that worked up to the use of some kind of a weight (either a weighted wand, a handheld dumbbell, or ankle weights) had the greatest outcome on the participants' strength; which ultimately affects balance, gait, and mobility. Research was not performed on the format to use during an exercise program, but it was very common to see in the review of literature that it is typical to start with either no weights or a very light weight of one pound and then encourage the participants to increase that weight or incorporate the use of a weight into their exercise program. It was recommended that each exercise was done in three sets of 10 repetitions, if tolerated by the participant. When the participant is able to easily complete the three sets of ten exercises, it is a good indicator that the weights can be increased.

A three-ring binder with the recommended upper and lower extremity exercises was distributed to the management team and the activity director. It was noted that the activity director does perform some of the recommended exercise, but no weights were being utilized. There was a discussion held on other options that could be used for participants who are unable to use either a light weight or a wand, and these options were a can of soup, a broom handle, or a wooden dowel. The disadvantage of using a can of soup is that it can be difficult for participants

to hold on to if they have some arthritis and musculoskeletal changes in their hands. The assisted living facility had previously purchased some two pound dumbbells, but stated that some of their exercise participants are unable to handle that weight and that they would look into purchasing one pound weights for them to start with.

In the discussion of the aging population, especially those in the baby boomer generation, and the potential that assisted living facilities are going to become a more popular living situation because of the amenities and services that are offered, the conclusion was made that this type of an exercise program will be very beneficial to assisted living residents. After working hard in their earlier years, having the opportunity to relax and enjoy life is a welcoming thought, but the "use it or lose it" principle needs to be considered. Aging individuals need to know that participating in exercise activities such as those presented will keep them strong and result in better mobility and a steady gait, which reduces their risk of sustaining a fall.

This author left the assisted living facility with the feeling of making an indirect impact on the lives of those who live in that facility, providing the assisted living staff with a binder of exercises that can easily be performed by any individual. The binder that was given to them divided the lower extremity exercises into a section for participants who are steady enough to stand up. This individualization was encouraged, as those people need an exercise that is tailored to their capability, rather than having them all sit in the chair. An offer was given to the management team to contact this writer if the staff felt there was a need for further in-servicing. Those in attendance of the presentation were excited to utilize the exercise program that was tailored to their resident's capabilities, and honored to have a tool that has the potential to benefit the continued stay of their residents in their assisted living facility.

Implications for Nursing

In regards to all the studies that pertained to exercise programs for the aging individuals, and trying to find studies explicitly conducted on assisted living residents, there were very few published studies. The studies that were found, in trying to keep the focus on a specific exercise program, stated that they felt limited in regards to participants who continued through the study, especially those in the control group. Studies such as that conducted by Wallman et al. (2009) suggested that "future research should consider the use of larger sample sizes" (p. 425). The conclusion drawn from this information is that more studies need to be conducted on the effects of specific exercise programs on a specific population, preferably those residing in an assisted living facility for an extended period of time.

Having more evidenced-based information available to nursing personnel, specifically those in management positions in an assisted living facility, would allow them to establish exercise programs for the assisted living residents that would have the greatest impact on their health and well-being. "Health care professionals working with the elderly residing in assisted-living facilities…are in a position to facilitate improvement in their patients' balance and perceived abilities to perform ADL" (Wallman et al., 2009, p. 424). Being able to incorporate free weight exercise programs into the daily activities schedule, and having the research to support the reason for that specific type of activity, will only benefit the aged individual by improving their gait and balance with the ultimate goal of reducing their risk of sustaining a fall with adverse effects.

Although Baum et al. (2003) state nursing home residents as their study population, their point is still relevant to assisted living individuals:

> Strength training exercise therapy is a tool underused by physicians directing the multidisciplinary care of the frail elderly. A survey conducted in nursing homes in Canada found that most nursing homes provided range of motion exercise but not strength training....If a proactive approach is not taken toward promoting physical activity in LTC facilities, most residents who were able to ambulate independently will spend most of their time either lying down or sitting. Inevitably this will lead to deconditioning, functional status decline, falls, and poorer hospital outcomes. A slight increase in resident function may seem insignificant, but any therapeutic intervention that assists and maintains minimal mobility could decrease the risk of pressure ulcers and contractures and allow residents to assist more with transfers and waling short distances. Residents with better function can participate in more activities with a better quality of life. (Discussion section, para. 5)

Students in nursing programs are taught range of motion exercises in their first semester; however, exercises using weights and performing weight bearing are not being taught in nursing curriculums as ways to either enhance or improve independence in the elderly population. Students would benefit from education on the importance of having all aging individuals continue to exercise with the use of free weights to maintain or build muscle strength.

Assisted living facilities are becoming a very popular way of living because of the amenities that they provide. In the U.S. Department of Health and Human Services' (n.d.) Healthy People 2020 publication, there is a new section titled "Older Adults" with a listed goal to "Improve the health, function, and quality of life of older adults" (Older Adults section, para. 1). This "Older Adults" section discusses the needs of an aging population which includes the baby boomer generation, and one section specifically addresses injury prevention related to falls.

Nursing students need to be educated on the aging population and ways to tailor their learned education to optimize the health and well-being of the population that they will be serving.

Summary

In conclusion, assisted living facilities are becoming a popular option for living accommodations. They provide a combination of housing and other amenities in a community-like setting, allowing individuals to maintain their dignity by maintaining their independence for as long as they can. Assisted living facilities are an ideal place for structured exercise programs to be implemented, knowing that physical activity is essential for maintaining one's physical functioning as a person ages.

Besides developing a structured exercise program, the literature review led to a proposal to incorporate strength training into the exercise program. A structured exercise program provides not only the benefit of therapeutic social interaction, but also a routine that aging individuals like to incorporate into their day-to-day activities. Incorporating strength training into the exercise program assists with the maintenance of muscle mass and helps combat the loss of bone mass that causes osteoporosis.

Implementing a strength training program into an assisted living facility's daily activities is not a cost prohibitive endeavor. Once the optimal exercises have been incorporated into the already scheduled exercise sessions, adding therabands, hand held weights, or soft ankle weights is something that can gradually be incorporated into an assisted living's budget. Another option to cover the minimal cost would be to have the assisted living residents who are highly involved in the exercise sessions purchase small one or two pound weights. No additional supplies are necessary such as a TV with a DVD player to play an exercise regime.

There is going to be a tremendous number of aging individuals over the following years, especially with the 78 million in the baby boomer population. The number of aging individuals is going to place the healthcare system in need of more providers to be able to provide quality care as everyone deserves. One way that healthcare providers can have an impact on disease prevention is to encourage the elderly population to continue to stay active and incorporate strength training exercises into their routine. This will have an added benefit of warding off chronic diseases and premature death from physical inactivity. "Done regularly, these exercises build bone and muscle and help to preserve strength, independence, and vitality" (Seguin et al., 2008, p. 2).

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