The Lifestyle-integrated Functional Exercise Program for Older Adults

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Introduction

According to the Centers for Disease Control and Prevention, falls are the most common cause of fatal and non-fatal injuries among older adults over the age of 65 (Centers for Disease Control and Prevention [CDC], 2009). Falls can lead to a myriad of traumatic physical and emotional consequences. Both older adults who have fallen and those who have not experienced a fall can develop a fear of falling. A fear of falling may discourage older adults from engaging in meaningful activities as they may now perceive certain activities as dangerous due to the risk of falling (Boyd & Stevens, 2009; Lach, 2005). Lifestyle integrated Functional Exercise (LiFE), an integrated exercise program has been proven to prevent falls and decrease the fear of falling in older adults (Clemson et al., 2012).

The Original LiFE Study

Clemson et al. (2012) developed the LiFE program integrating balance and strengthening activities into daily routines to reduce the rate of falls in older adults. Older adults, ages 70 or older, who had experienced two or more falls, or one injurious fall within the previous 12 months, participated in the study. Participants were assigned to either a structured exercise intervention group, the LiFE intervention group, or a control group consisting of 12 gentle flexibility exercises. The LiFE intervention group learned balance and strength principles that could be incorporated into their daily routines as often as possible, such as standing on one's toes while brushing one's teeth, or standing on one foot while watching television.

The LiFE program was effective in preventing falls and increasing fall efficacy which is a persons confidence in not falling (Clemson et al., 2012). Furthermore, it shows that the LiFE program is effective in reducing the rate of falls by 31 % in older adults who have experienced a fall when compared to a control group (Clemson et al. 2012). However, there is no current study that looks at whether LiFE can reduce the risk of falls in non-fallers as it does fallers.

Literature Review

Exercise for Fall prevention

•Exercise that promotes balance and strength can reduce fall risk, as well as increase fall self-efficacy (Hess & Woollacott, 2005)

•While traditional exercise programs may address the risk factors that lead to falls, they are time consuming and often lack motivation and compliance (Lord et al., 2005; Newson & Kemps, 2007).

Benefits of Integrated-exercise vs. Traditional Exercise

•Integrated exercise uses an occupation-based approach by incorporating balance and strengthening activities into everyday activities. Integrated exercise is tailored to each individual's needs and lifestyles, and is motivating and accessible. Compliance is greater because the exercises become part of an overall lifestyle routine (Opdenacker, Boen, Coorevits, & Delecluse, 2008).

Statement of Purpose

The purpose of this study was to examine if the LiFE program is as effective in reducing fall risk and increasing fall efficacy for non-fallers as it is for fallers.

Methodology

•One-group pre-test post-test experimental design.
•Residents living in an independent unit at a senior residential facility were recruited.
•The participants completed five weekly one-hour sessions to learn the balance and strength training principles.
•The participants practiced and integrated the balance and strength activities into their daily routines.
•Participants completed a booster session and received two follow up phone calls from the researchers to encourage habit formation.
•Participants filled out an Activity Planner and Activity Counter once a day throughout the program and for 16 weeks after completion of the program to monitor their implementation of the daily activities.

Data Collection

Balance and strength assessments
•Timed Up and Go test
•Chair Stand Test
•Functional Reach Test
•One-leg Stand test
Fall efficacy assessments
•Activities-Specific Balance Confidence Scale
General health and physical ability assessments
•Patient Reported Outcomes Measurement Information System (PROMIS®)
Additional
•Activity Planners and Activity Logs were collected.
•Testimonials were transcribed.

Demographics and Program Outcomes

Participant	Age	Falls	One Leg Stand	Fall Efficacy	Functional reach test	Timed up and go	Chair stand test
A	86	0	Increased balance	High	Fall risk	Not a fall risk	Improved fitness level
B	85	0	Increased balance	High	Not a fall risk	Not a fall risk	Remained the same fitness level
C	81	0	Remained the same	High	Not a fall risk	Fall risk	Increased fitness level

Program Effects and Testimonials

•"It's helped me to get stronger. I can include the exercises into things I do already." – Participant A

•"It has helped me to be more aware of exercises in my daily life. My balance has become a lot better during some activities since starting the program." – Participant B

•"It was beneficial, hopefully I can continue to do that in the future." – Participant C

•"I enjoyed doing it better than other exercises. I've been an exerciser for a long time. It was a worthwhile program." – Participant A

Discussion and Conclusion

In this study, the LiFE program included non-fallers to investigate whether the LiFE program was effective in reducing the risk of falls and increasing fall efficacy. The results were limited due to a small sample size and inconclusive as to whether this program was effective in reducing falls, overall feedback from the participants was positive in promoting integrated exercise into daily routines. In addition, participants were able to maintain and or increase their physical fitness and fall efficacy abilities. Furthermore, the implementation of the modified LiFE program will encourage occupational therapists to place a greater emphasis on implementing fall prevention programs to fallers and non-fallers to facilitate successful aging in older adults.

Demonstration of a balance exercise: Tandem walking while at the park challenges balance

Demonstration of a strength exercise: Standing on one leg using fingers for support while waiting at the bus stop

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