

# IMPLEMENTING A 4 WEEK BALANCE PROTOCOL TO IMPACT QUALITY OF LIFE IN CANCER PATIENTS

Alyssa Bender, Lauren Braun, Kayla Franklin, Megan Kidd, Nikki Rendler  
 Faculty Mentors: Matthew Wiggins EdD, Saori Braun PhD  
 University of Wisconsin- Eau Claire - Department of Kinesiology



## ABSTRACT

**Purpose:** As a result of various cancer treatments, balance, fall risk, and quality of life (QOL) of cancer survivors are often negatively compromised. There has been no prior research conducted examining balance ability and its association with QOL in cancer patients. The purpose of the study is to investigate whether improved balance will positively influence on QOL. **Methods:** Eight female cancer patients (age 55.8± 11.8 yrs.) volunteered for an experimental group, and five discharged, sex-matched cancer patients (age 64.5 ± 4.6 yrs.) volunteered for a control group. A 4-week balance program, a 5-10 minute session that consists of 5 different exercises engaged twice a week, will be implemented among the experimental group. Measures of balance and fall risk will be obtained using a balance system (Biodex SD 950-440). QOL will be assessed by employing the Functional Assessment of Cancer Therapy-General (FACT-G) survey. A correlational analysis was employed to analyze fall risk, and an independent samples t-test was utilized to compare changes in QOL from pre- to post-intervention between groups using SPSS 19.0 (*alpha* of .05). **Results:** There was no significant relationship between QOL and fall risk ( $p=.868, .799$ ). An independent samples t test and 2 way ANOVA demonstrated inconclusive results. **Conclusion:** Results do not support our hypothesis that an improvement in fall risk reflects in cancer patients' QOL. Further research needs to be completed in order to provide more information regarding QOL and fall risk.

## INTRODUCTION

More research needs to be completed on this topic. We found encouraging research giving evidence to the positive correlation between fall risk and quality of life (QOL) regarding cancer. We intend to link these variables together by conducting this research study. Due to the decreased QOL and increased fall risk in recovering cancer patients, we believe that implementing a balance protocol into cancer recovery programs will result in an improved QOL. Our study will provide insight into the possible correlations between the following variables: demographics, current activity level, fear of falling, QOL (as measured by FACT-G survey), postural sway, and fall risk.

## PURPOSE AND HYPOTHESIS

The purpose of this study is to determine if a balance protocol will improve the QOL in cancer patients. We hypothesize that balance will improve in the experimental group, therefore improving the QOL more-so than the control group.

Table 1. Balance protocol

Exercise	Sets	Duration	Rest	Comments
Cone Pattern-Semi Circle (a)	2	hold 5-30 seconds	30 seconds	
Balance Beam Pad (b)	2	2 lengths of the beam	30 seconds	Step over ankle-Length wise
Balance Beam Pad (c)	2	2 length of the beam	30 seconds	Walk Sideways-Feet perpendicular
Foam Square (d)	2	1 rep each leg	30 seconds	Front, Back, Side Touch
Heel-Toe rocks (e)	2	15 seconds	30 seconds	Against a wall
Balance ball leg extension (f)	2	5 reps each leg	30 seconds	Can start on chair

## METHODS

### Subjects

- Female cancer patients, age 59.5±10.2 yrs.
- Participants recruited via the University of Wisconsin – Eau Claire Cancer Recovery Program (Treatment) and local hospital (Control)
- Informed consent gathered according to IRB guidelines at UW-Eau Claire

### Instrumentation

- Quality of Life was assessed by the Functional Assessment of Cancer Therapy-General (FACT-G) survey (version 4).
- Fall risk and postural stability were assessed using a Biodex Balance System (Biodex SD 950-440). Three trials were recorded for each test.
- Demographic information was collected via a demographics survey. The survey found age, cancer type, time from/to treatment, treatment type, fear of falling, perceived ability to balance, and confidence in recovering from a fall. Height was measured using a stadiometer.
- The International Physical Activity Questionnaire was used to measure physical activity level. Activity level was gathered via a demographic survey.

### Testing Procedures

- Each subject signed informed consent forms, filled out a demographics survey, the FACT-G survey, and their height was measured. The Biodex assessments were explained, and a trial run was performed before Postural Stability and Fall Risk testing began.
- A 4-week balance program that consisted of 5 different exercises was implemented twice a week among the experimental group. (See Table 1).
- Post-testing was completed 4 weeks after pre-testing was performed for both control and treatment groups.

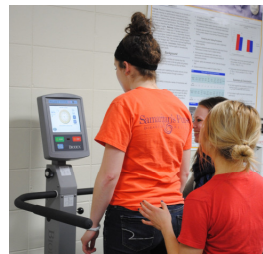


Figure 1. Biodex Balance System, Fall Risk Test

## STATISTICAL ANALYSIS

- Data analyzed using IBM SPSS version 19.0
- Descriptive statistics was used to determine the mean and standard deviation of the baseline characteristics of the subjects including age, height, and types of cancer treatment.
- A correlational analysis was used to compare the fall risk score and QOL score.
- Two-way repeated measures ANOVA was employed to compare changes in QOL and fall risk from pre- to post-intervention between treatment and control groups.
- Alpha level set at .05 to determine statistical significance

## RESULTS

- One participant in the control group withdrew from the study.
- Postural sway was not examined due to small variability in scores across participants.
- The correlational analysis showed no significant association between QOL and fall risk ( $r = .08, p = .790$ ).
- Two-way repeated measures ANOVA indicated no significant interaction effect ( $p = .914$ ) and no time effect ( $p = .458$ ), but there was a significant group effect ( $p = .040$ ) on QOL scores.
- After employing an independent sample t test, there was a significant difference found in QOL between the experimental and control group at baseline ( $p = .009$ ).
- Means and standard deviations of QOL scores by group and time are presented in Table 1.

Table 1. Quality of Life scores

	Group	Mean	SD
Pre-test	TX (n=8)	19.76	1.94
	CON (n=5)	22.79	1.60
Post-test	TX (n=8)	19.68	3.03
	CON (n=5)	22.60	2.36

Table 2. Fall risk scores by group and time

	Group	Mean	SD
Pre-test	TX (n=8)	2.16	1.29
	CON (n=5)	2.26	0.86
	Total	2.20	1.11
Post-test	TX (n=8)	2.01	1.20
	CON (n=5)	2.06	1.09
	Total	2.03	1.11

Note. TX = treatment group; CON = control group; SD = standard deviation

## SUMMARY AND CONCLUSIONS

- There was no change in QOL scores from pre- to post-program for both groups. However, there was a significant difference in the FACT-G scores between groups at baseline.
- Our short-term balance program was unable to improve quality of life score.
- In addition, FACT-G scores may vary from week to week as it assesses a multitude of factors.
- A balance assessment tool that is more sensitive to minute changes in balance may be more appropriate for further research.
- Future research should include a larger sample size and potentially the opportunity for a longer or more extensive program.

## REFERENCES

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