

Lifestyle Modification Group for Lymphedema and Obesity

Results in Significant Outcomes

Leslyn Keith, OTD, Carol Rowsemitt, PhD, RN, FNP-c & Lorie Richards, Ph.D., OTR/L, FAHA

Central Coast Lymphedema Therapy; Comprehensive Weight Management, A Nursing Corp.; Department of Occupational and Recreational Therapies, University of Utah

INTRODUCTION

- Lymphedema and obesity commonly co-occur complicating treatment and prolonging disability¹. Therefore, finding effective and efficient interventions for simultaneous treatment of these issues is critical for reducing disability.
- Meaningful weight reduction requires sustained alterations of diet² as well as other lifestyle changes³, while effective lymphedema management requires strict adherence to daily self-care strategies such as skin care, self-manual lymph drainage, and wearing compression garments⁴. However, such lifestyle modification has been very difficult for individuals to achieve.
- A review of the literature shows that in every randomized controlled trial on human subjects in which various diets are compared, those adhering to a low carbohydrate ketogenic diet achieve superior results in most outcome measures⁵.
- Research suggests that lifestyle modification groups can be an effective and efficient way to assist people with weight loss⁶. Weight-loss outcomes have been sustained the longest when there is continued contact either in person or virtually⁷.
- The efficacy of a lifestyle modification group approach that encourages a low carbohydrate ketogenic diet has never been tested in the population with lymphedema who are also obese.

METHODS

10 subjects participated in a lifestyle modification program, inspired by USC's Lifestyle Redesign[®].

Participant Baseline Characteristics

Participant	age	gender	Weight* (pounds)	Waist Circumference* (centimeters)	% Body Fat*	BMI*	Affected Limb
1	70	Female	197.27	96.17	34.4	31.33	Bilateral Legs
2	67	Female	225.7	108.5	41.4	41.33	Bilateral Legs
3	70	Male	388.57	157.17	33.9	54.20	Bilateral Legs
4	69	Female	202.77	101	41.03	33.23	Bilateral Legs
5	68	Female	288.03	136.67	44.53	45.17	Bilateral Legs
6	66	Female	208.7	106.67	39.47	32.73	Unilateral Arm
7	57	Female	214.3	122.83	43.53	39.23	Bilateral Legs
8	68	Female	224.37	96.33	42.67	35.17	Bilateral Legs
9	66	Female	207.63	107.33	42.93	34.07	Bilateral Arms
10	66	Female	217.43	99.83	44.2	37.33	Bilateral Legs
Mean (SD)	66.7 (3.74)		237.48 (58.85)	113.25 (19.94)	40.81 (3.83)	38.38 (7.02)	

*These are averages of the 3 baseline measures

Outcome Measures:

- Body Weight
- Limb Volume
- Lymphedema Life Impact Scale (LLIS) – lymphedema-related quality of life

Data were collected prior to the intervention at three baselines, each two weeks apart, and twice post-intervention (within one week of the last group session and one month post-intervention).

INTERVENTION

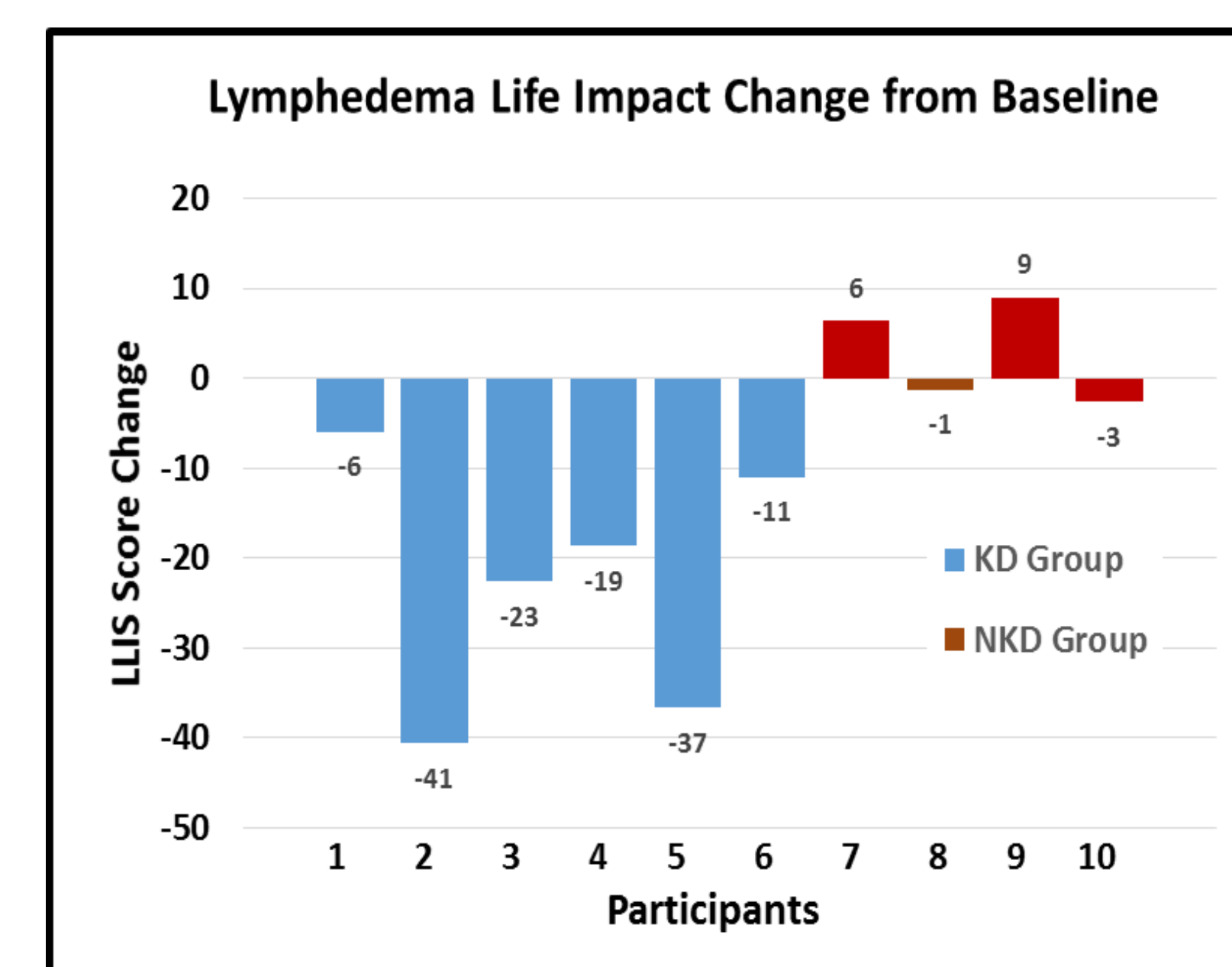
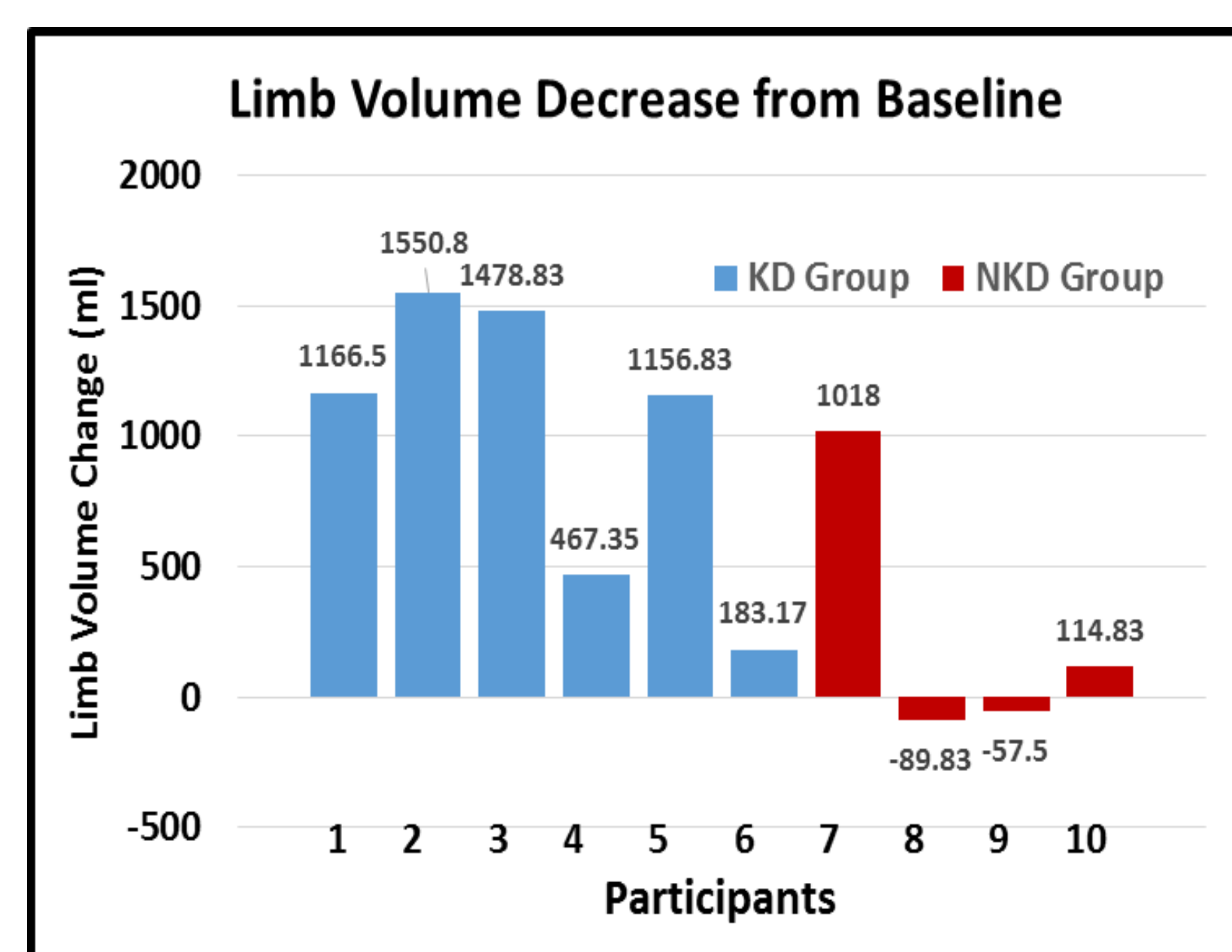
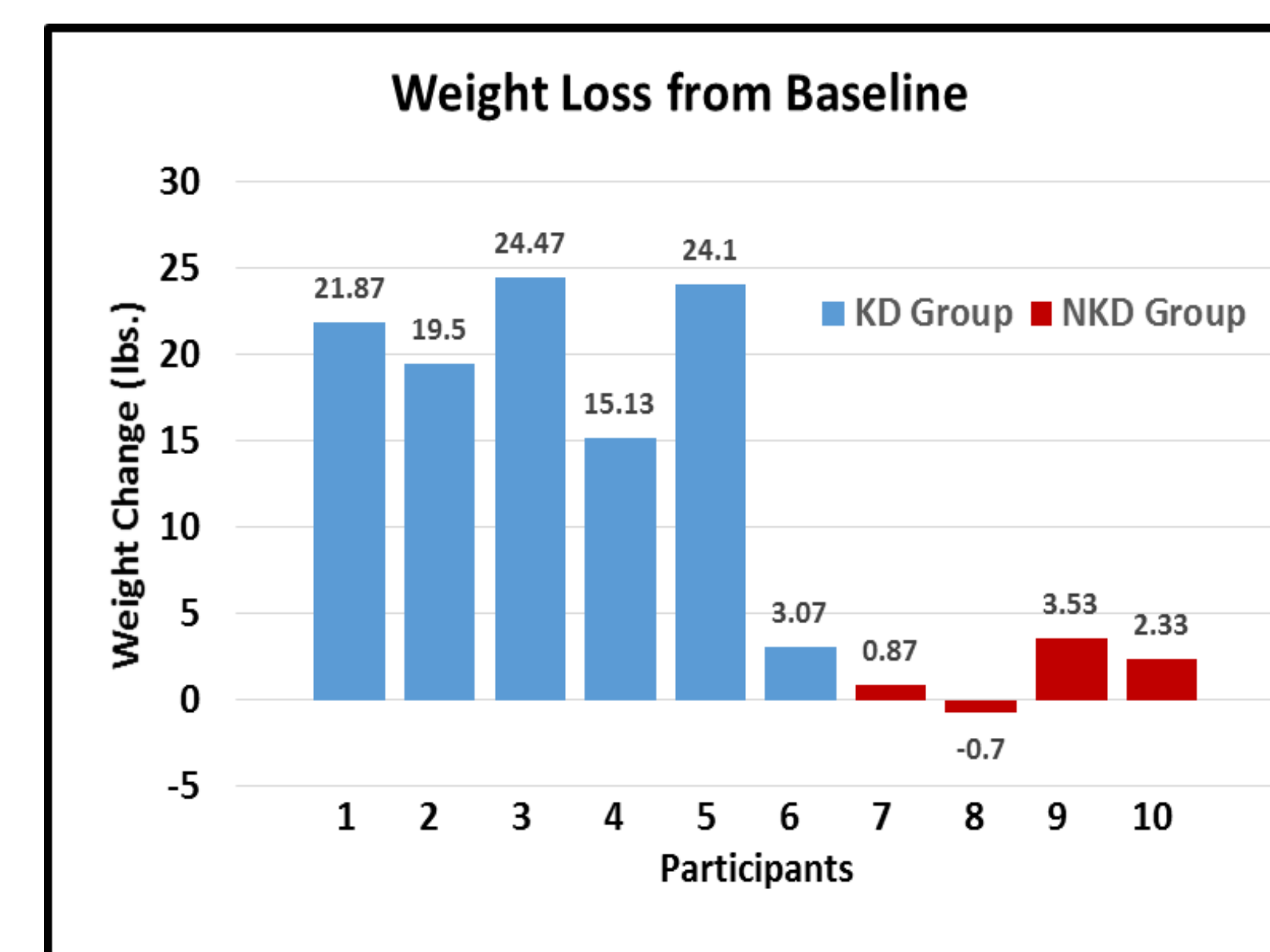
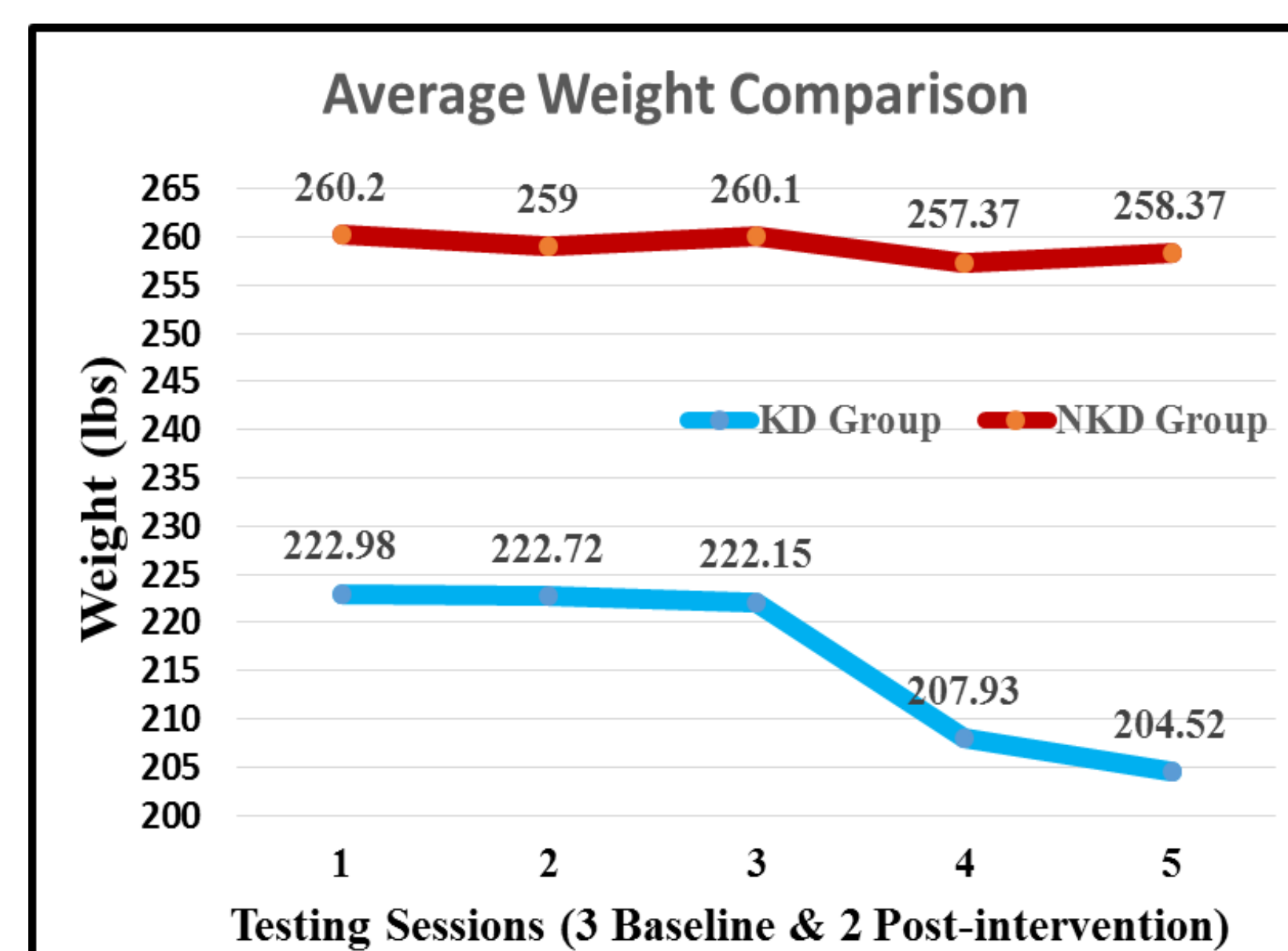
- Twelve 1.5 hour group sessions** in lifestyle modification, based on the Lifestyle Redesign[®] model, and led by an occupational therapist. Mean group attendance was 8.2 sessions ($SD = 2.2$).
- Six 0.5 hour individual sessions** were also offered for developing personal priorities, individual goal-setting, and problem-solving. Mean individual session attendance was 3.8 visits ($SD = 1.14$).

Session Topic

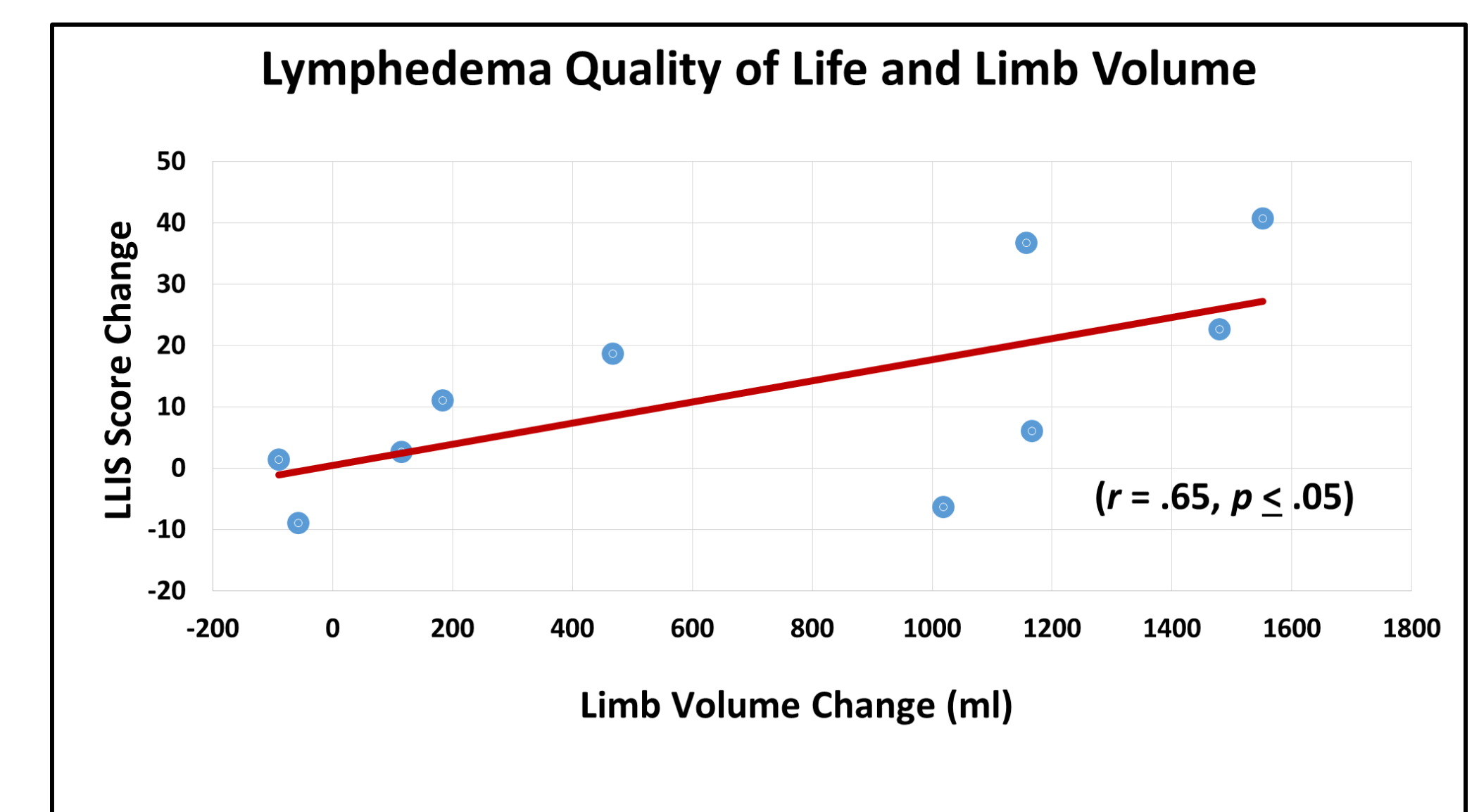
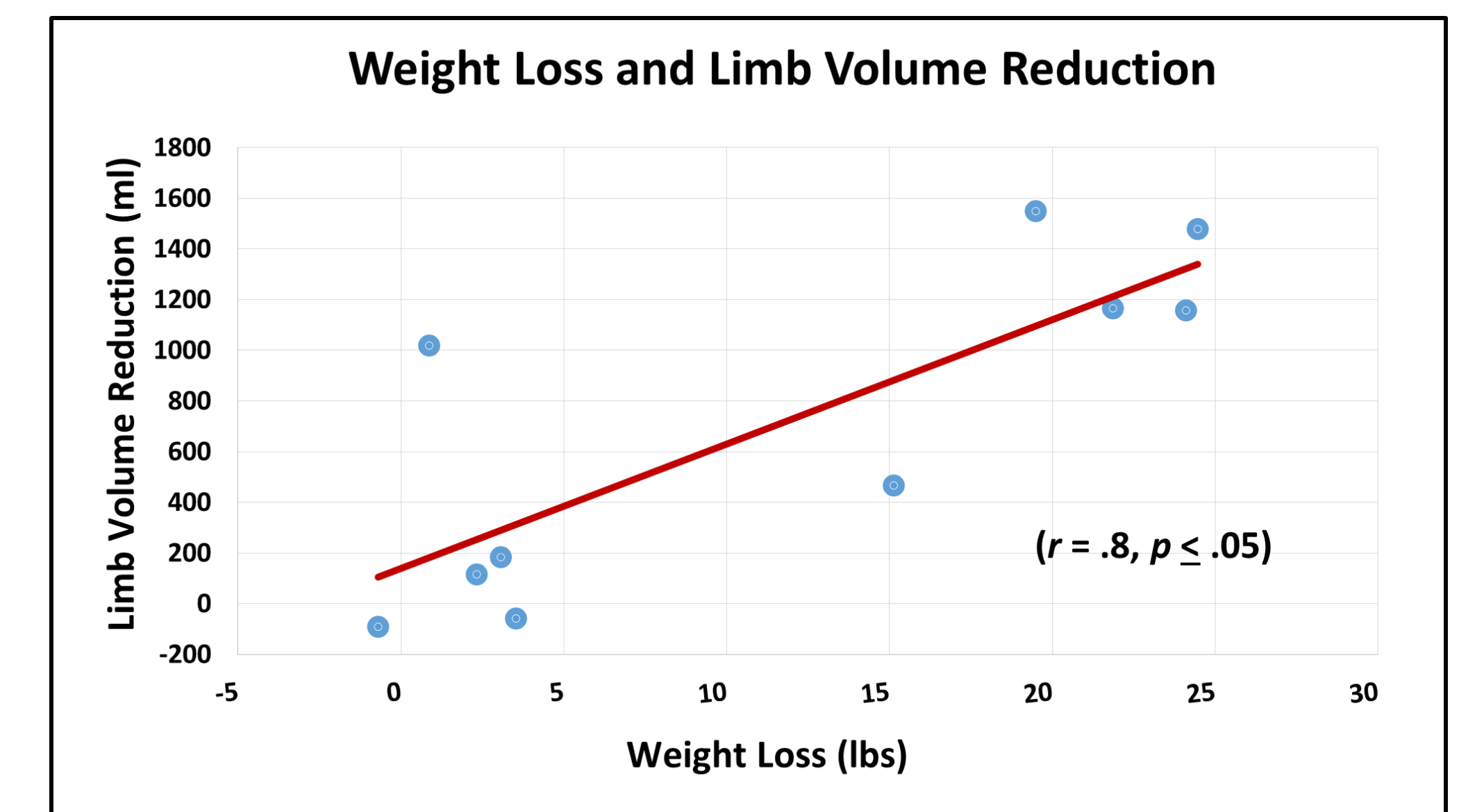
Session 1	Introduction to Lifestyle Change
Session 2	Eating for Health & Weight Loss – Ketogenic Diet
Session 3	Eating Routines
Session 4	Prevention/Management of Chronic Medical Conditions, plus Guest Lecture (Thyroid & Weight Management)
Session 5	Barriers to Change & Coping Strategies
Session 6	Eating Out & Social Eating
Session 7	Field Trip – Meet at Restaurant
Session 8	Physical Activity & Exercise
Session 9	Stress Management, plus Guest Lecture (Meditation)
Session 10	The Importance of Sleep
Session 11	Life Balance & Time Management
Session 12	Wrap-up & Review: Planning for Sustained Change

RESULTS

Self-selected Diet Groups: Ketogenic Diet (KD) Group ($n = 6$)
Non-Ketogenic Diet (NKD) Group ($n = 4$)



RESULTS



No relationship was found between the number of groups attended nor individual sessions attended and a change in any of the outcome measures.

DISCUSSION

- The lifestyle modification program used in this study was feasible, resulting in a high retention rate and good program attendance.
- The program resulted in weight and limb volume reduction and reduced lymphedema-related life impact for participants who used a ketogenic diet. The results offer preliminary evidence that this intervention may be a viable adjunct to improved clinical outcomes for lymphedema treatment.
- Further research using a controlled design is needed to confirm efficacy, and to ascertain which elements of the program are key for facilitating positive results and whether the positive results obtained from this study are sustained in the long term.

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