



The WEIGH Study: Weighing Everyday to Improve and Gain Health

**A Randomized Trial Focusing on Daily Self-Weighing for Weight
Loss Among Overweight Adults**

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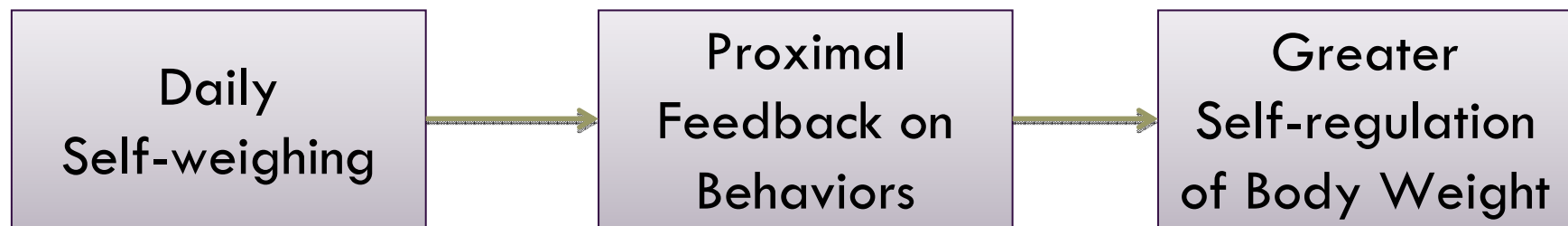
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Background

- Obesity continues to be a challenging public health problem
- Self-monitoring is associated with weight loss success, but adherence declines rapidly over time
- Important to test interventions that focus on simple, and possibly more sustainable, self-monitoring behaviors.

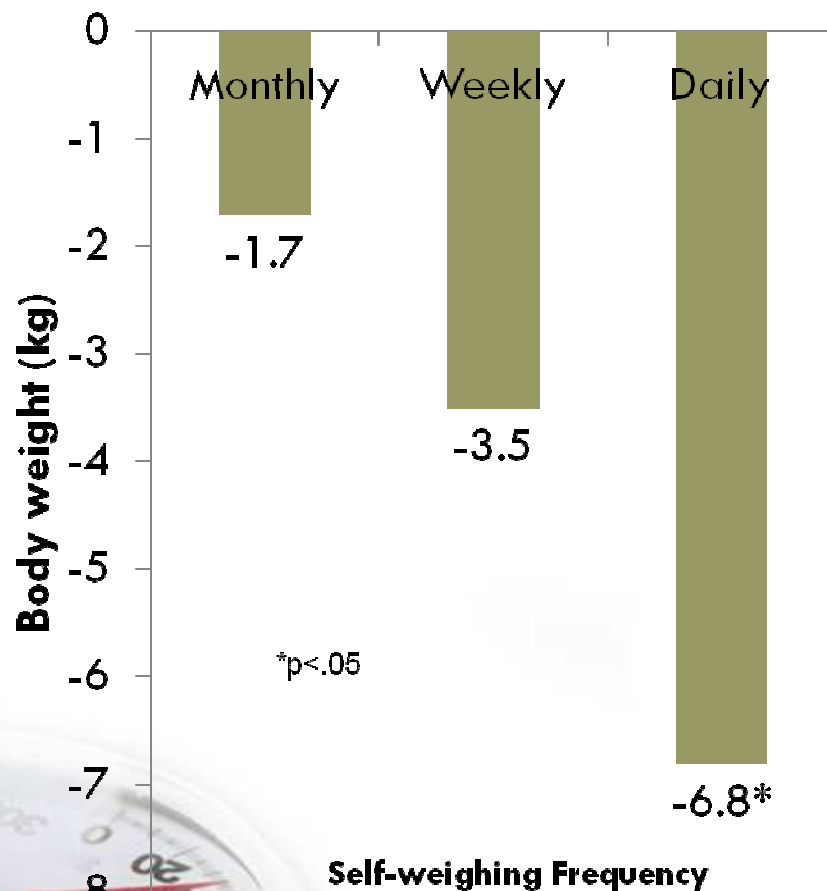


Self-weighing as a Self-monitoring Strategy

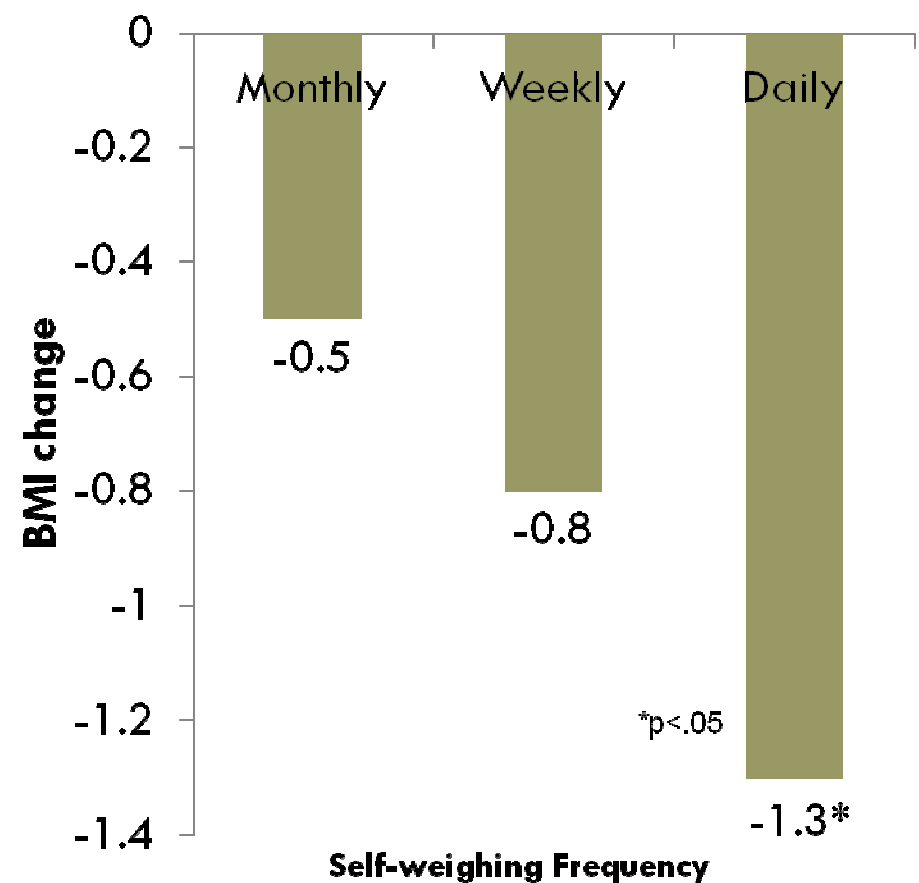


Daily Self-weighing Evidence

**6-month Weight Change
within the 'DIAL' Trial**



**12-month BMI Change within the
'Weigh to Be' Trial**



Objective

Test whether a low-intensity intervention focusing on daily self-weighing can produce significantly greater weight loss compared to a delayed intervention control group.



METHODS



Eligibility Criteria

- Adults ages 18-60
- BMI 25-40 kg/m² and a max weight of 330 lbs
- Access to a computer with Internet
- Without medical conditions that might affect participation
- No recent weight loss

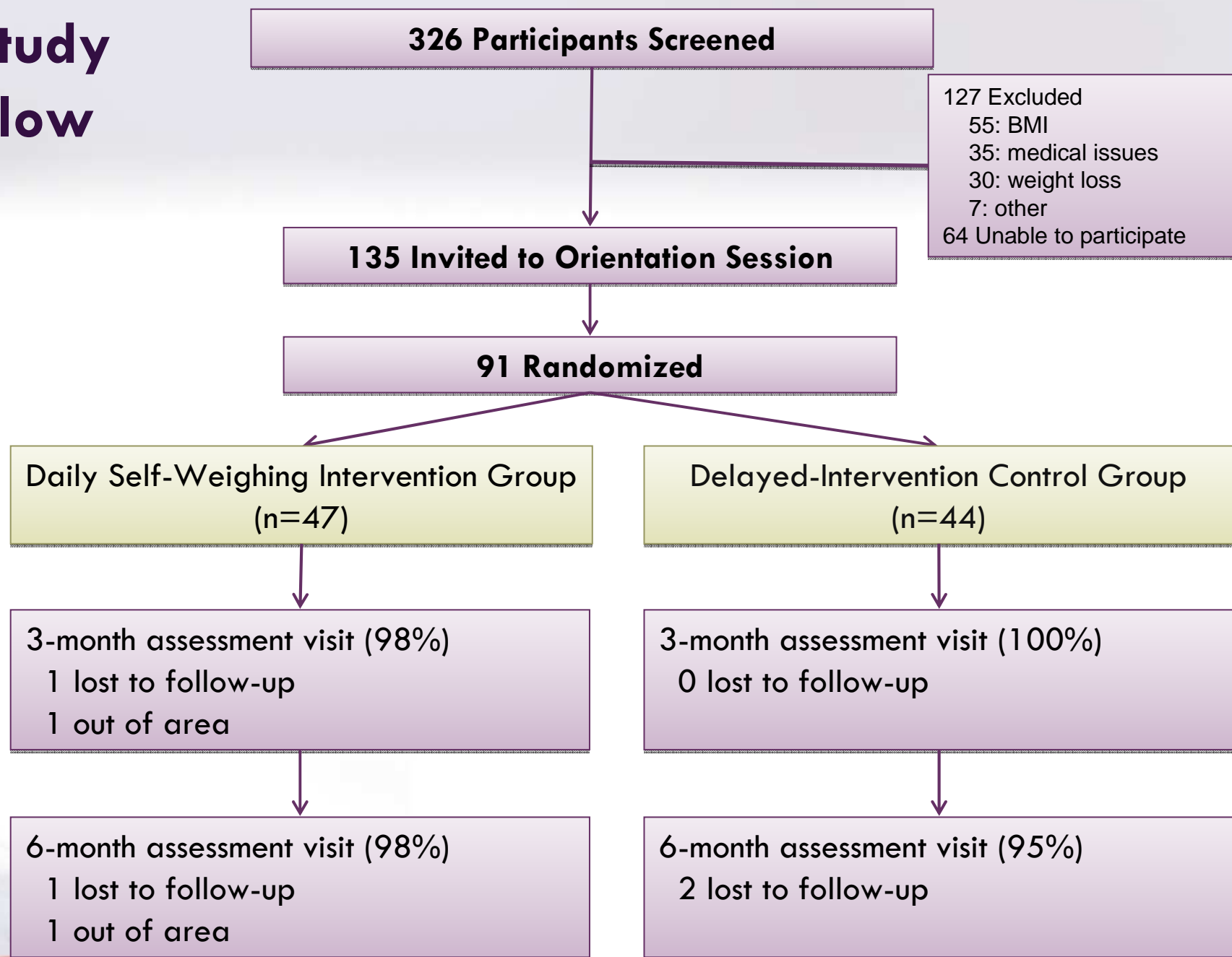


Setting and Recruitment

- Setting
 - Coordinated out of the UNC Weight Research Program
 - All intervention components were completed at home
- Recruitment
 - UNC informational listserv
 - Flyers posted at UNC Chapel Hill and the surrounding area
 - Brochures at health clinics



Study Flow



INTERVENTION COMPONENTS



Intervention

- Weighing daily using “smart” scale
- Graph of weight trends via www.bodytrace.com
- Weekly tailored feedback via email on
 - **Self-weighing frequency**
 - **Weight loss progress**
- Weekly lessons via email on behavioral weight control





Smart Scales





Michael
New York, NY



-12.0 lbs
IN 14 DAYS

6 days to reach your goal

I am trying to lose a few pounds for my family.

Weight Chart

01/10/10 - 01/24/10

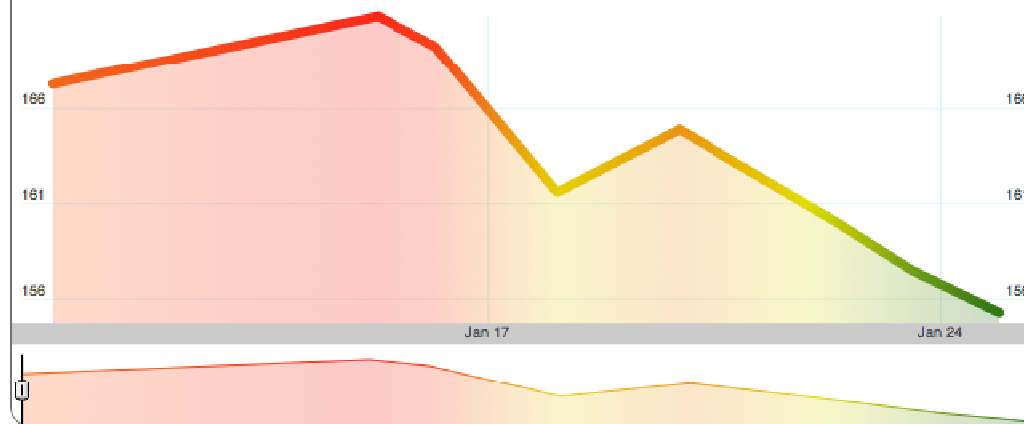
start **167.3 lbs**

current **155.3 lbs**

goal **150.0 lbs**

weight

BMI



Weekly Emails

- Tailored feedback on self-weighing frequency and weight loss

- 4 Main Categories

1. Weighed 6-7 days and weight loss on avg ≥ 0.5 lbs/week
2. Weighed 6-7 days and weight loss on avg < 0.5 lbs/week
3. Weighed 0-5 days and weight loss on avg ≥ 0.5 lbs/week
4. Weighed 0-5 days and weight loss on avg < 0.5 lbs/week

- Behavioral weight control lessons



Control Group

- Received a modified version of the program at the end of 6 months
- Received Smart Scales at Baseline
 - **Were instructed to weigh as they normally do**



Measures

- Weight
 - **In clinic at baseline, 3, and 6 months**
- Self-weighing frequency
 - **Via smart scales**
- Self-weighing perceptions (intervention group only)
 - **Online questionnaires at 3 and 6 months**



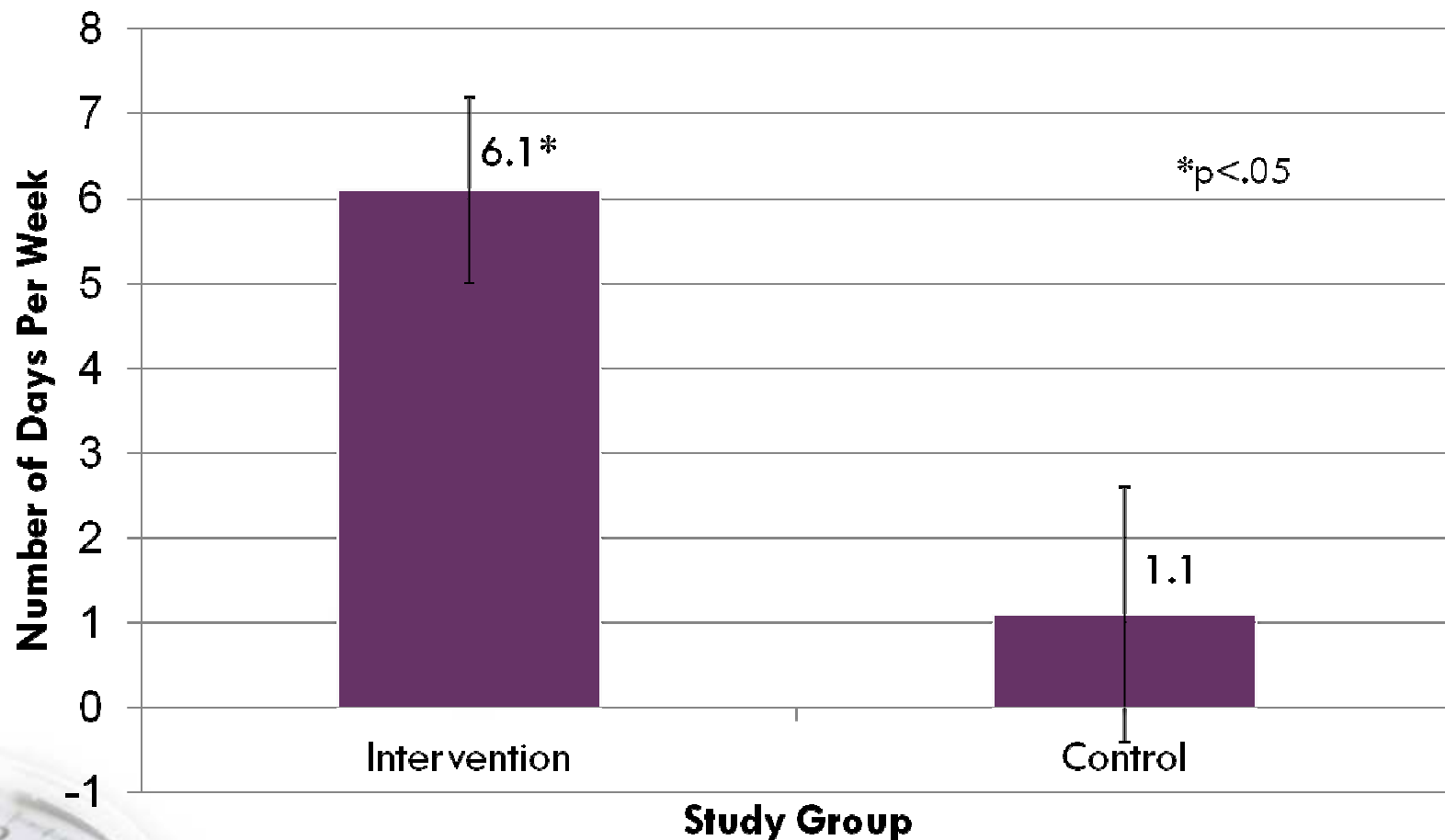
RESULTS



Baseline Characteristics	Control (n=44)	Intervention (n=47)	P-value
Age	44.7 (\pm 10.6)	43.0 (\pm 11.4)	.45
Female	35 (79.5%)	33 (70.2%)	.31
White	31 (70.5%)	36 (76.6%)	.51
College-educated	35 (79.5%)	36 (76.6%)	.73
Married	27 (61%)	28 (60%)	.86
Weight (kg)	86.1 (\pm 13.4)	94.5 (\pm 15.8)	.008
BMI	31.05 (\pm 3.13)	33.18 (\pm 4.03)	.006
Self-weighing frequency			
•Daily	11 (25%)	5 (10.6%)	.20
•Weekly	15 (34.1%)	17 (36.1%)	
•Less than weekly	18 (40.9%)	24 (51.1%)	

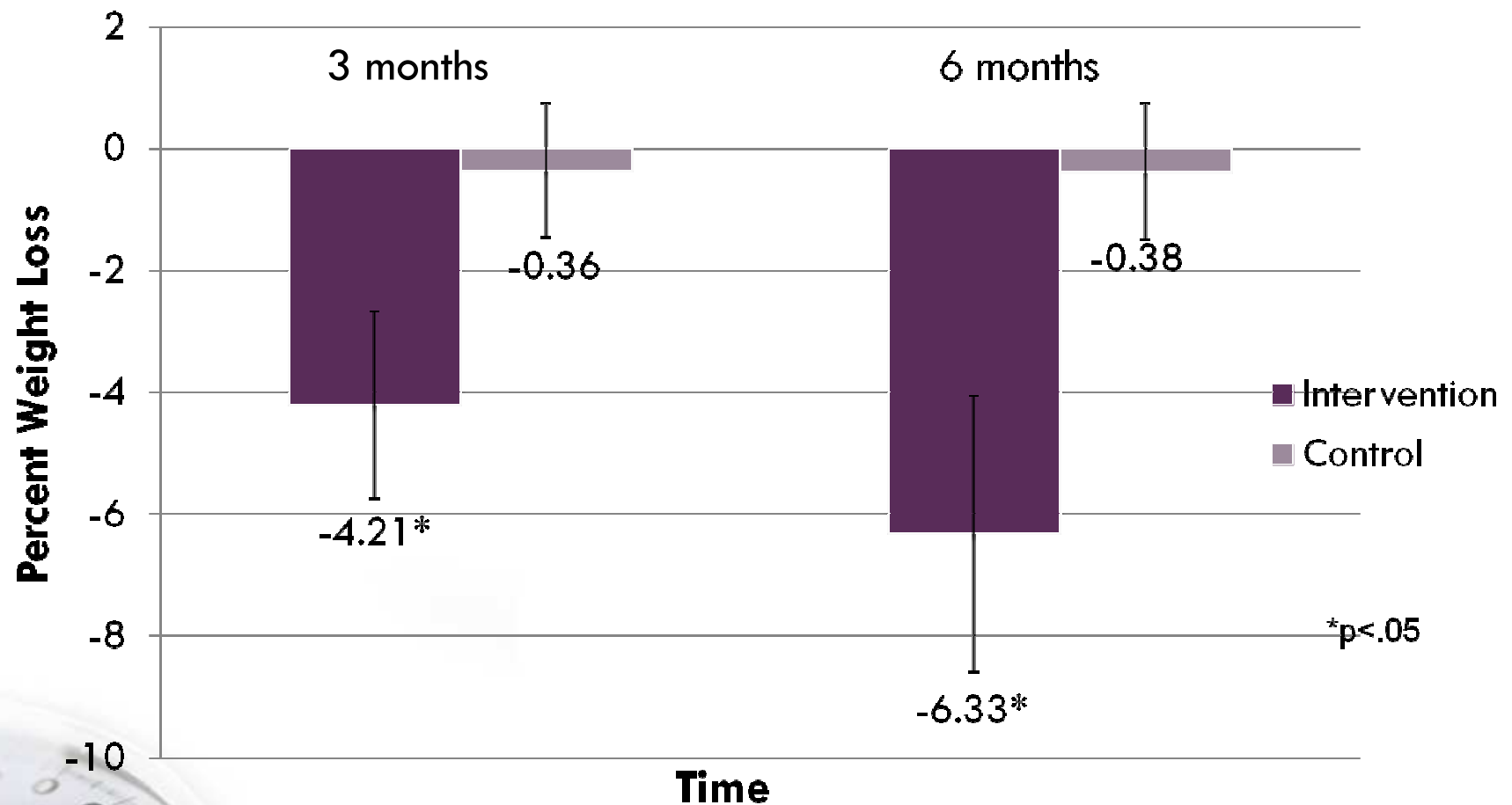
Self-Weighing by Group at 6 months [Mean (SD)]

Average Days Weighed Per Week by Study Group

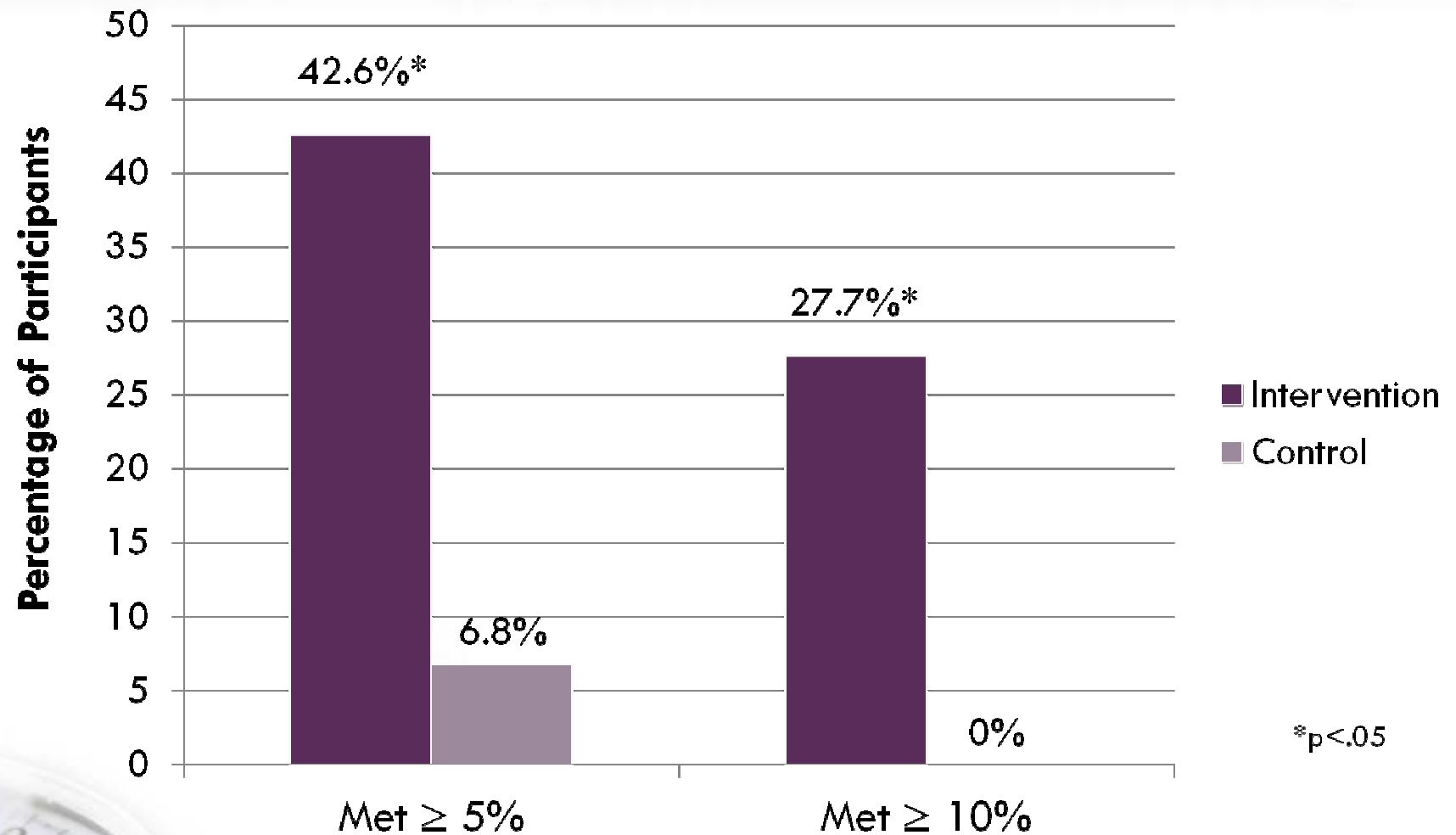


Main Weight Loss Outcomes [Mean (95% CI)]

Weight Loss by Study Group

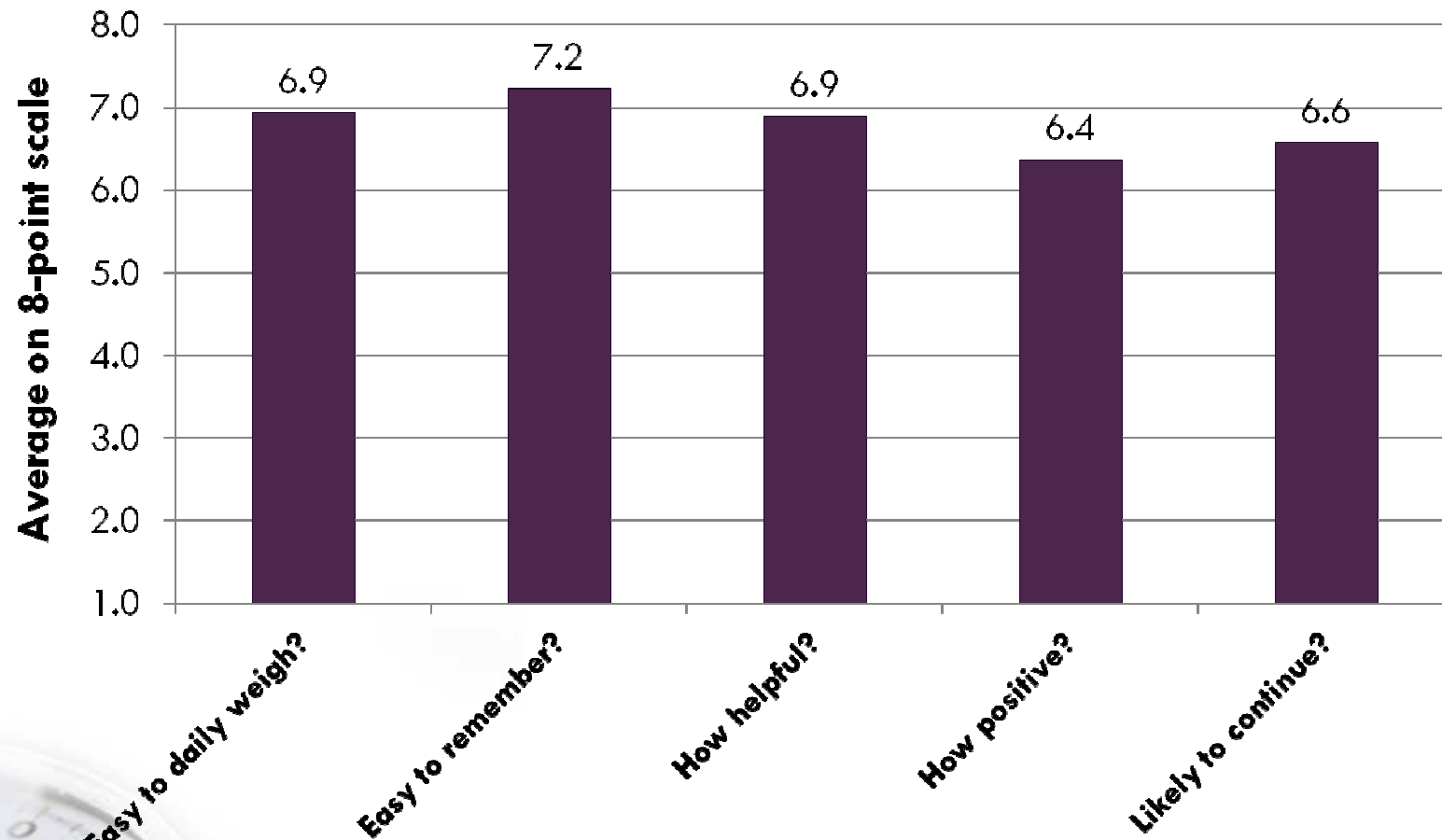


Percent that Achieved Weight Loss Goals



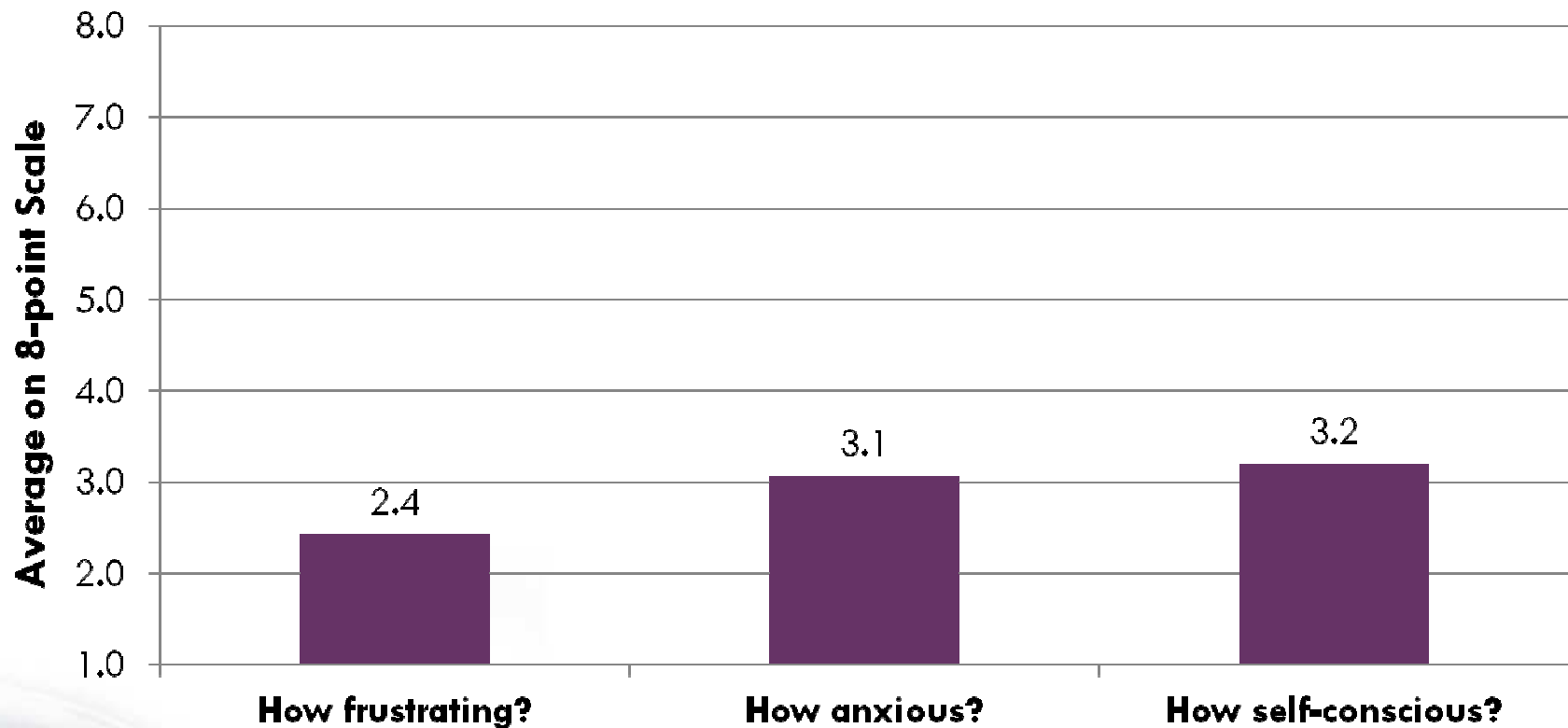
Perceptions of Daily Self-weighing

**Average Score on Daily Self-weighing Perceptions
(intervention group only; n=47)**



Perceptions of Daily Self-weighing

**Average Score on Daily Self-weighing Perceptions
(intervention group only; n=47)**



Summary

- A low-intensity intervention focusing on daily self-weighing as the main self-monitoring strategy can produce clinically significant weight loss
 - **6% after 6 months**
- Daily self-weighing is feasible and perceived as a positive behavior



Strengths and Limitations

Strengths

- Randomized design testing daily self-weighing under minimal contact conditions
- Objective measure of self-weighing frequency across both groups
- Strong retention

Limitations/Challenges

- Unable to isolate daily self-weighing
- Some technical issues with the scales
- Generalizability



Implications and Future Studies

- Daily self-weighing is further established as an effective self-monitoring strategy
- Future studies:
 - **Independent of other types of self-monitoring**
 - **Daily vs. weekly comparison**



Acknowledgements

- Lineberger Comprehensive Cancer Center
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- UNC Gillings School of Public Health Dissertation Award
- Doctoral Committee

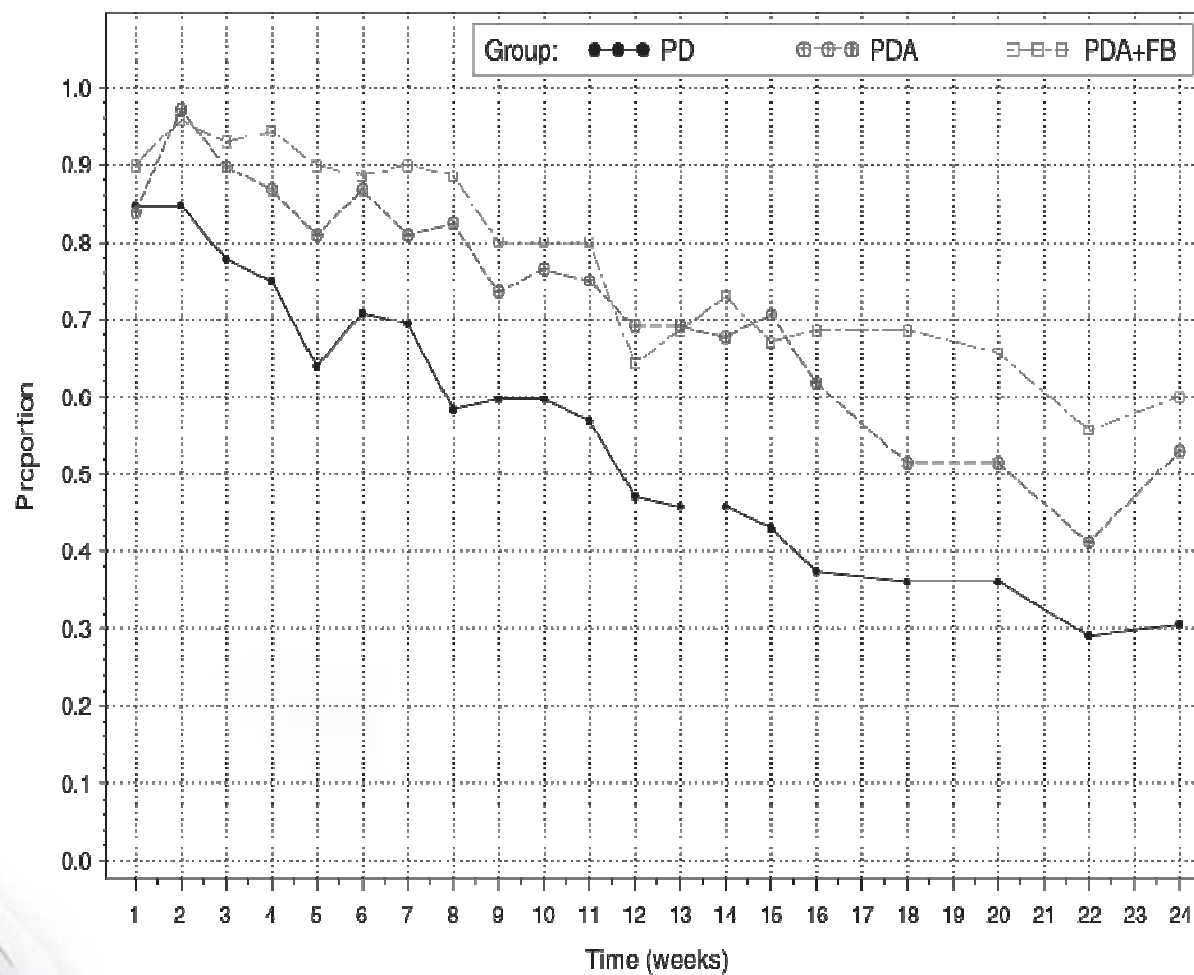


Questions?

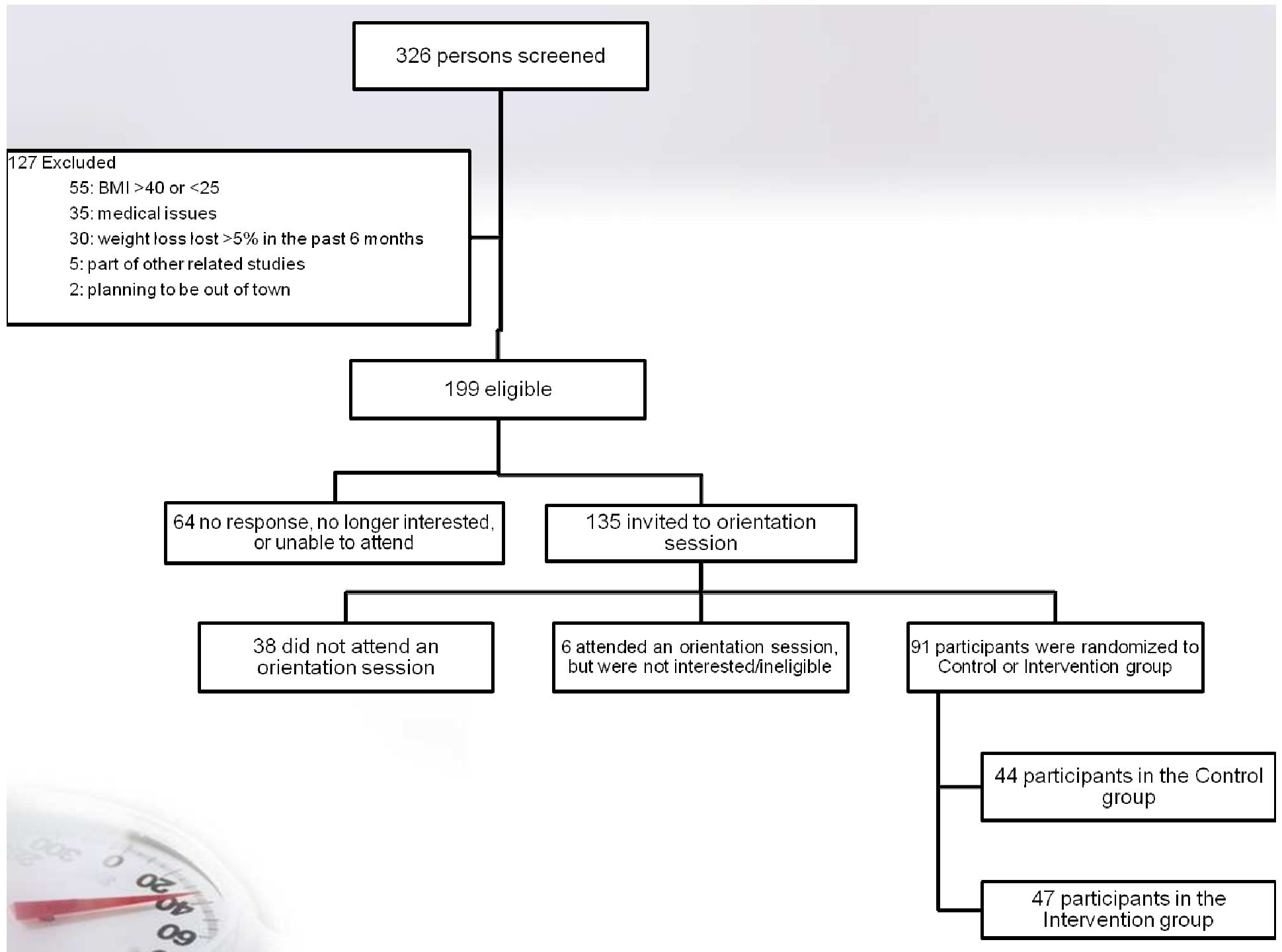
Email: dori@unc.edu



Example of Self-monitoring Decline



Burke LE et al., 2011



Variable	Measures	# of items	Time points
Body Weight	Tanita Digital Scale in study center	---	BL, 3, 6 mo
Self-weighing Habits	Objective measure from scales Weighing Habits Questionnaire Perceptions about Daily Self-Weighing	4 10	BL, 3, 6 mo
Caloric Intake and Eating Behaviors	ASA-24 24-hour recalls Eating Behavior Inventory Weight Management Strategies Questionnaire	--- 26 38	BL, 3, 6 mo
Exercise Habits	Paffanbarger Exercise Habits Questionnaire	7	BL, 3, 6 mo
Eating and Exercise Self-efficacy	Weight Efficacy Lifestyle Questionnaire (eating) Sallis Self-efficacy for Exercise Behaviors Scale	20 12	BL, 3, 6 mo
Self-regulation and Motivation	Treatment Self Regulation Questionnaire	18	BL, 3, 6 mo
Depressive Symptoms	Center for Epidemiologic Studies Depression Scale	20	BL, 3, 6 mo
Disordered Eating Cognitions	Brief Mizes Anorectic Cognitions Questionnaire	12	BL, 3, 6 mo
Binge Eating Patterns	Questionnaire on Eating and Weight Patterns	15	BL, 3, 6 mo
Body Shape Concerns	Body Shape Questionnaire (BSQ-16)	16	BL, 3, 6 mo
Dietary Restraint and Hunger	Three Factor Eating Questionnaire	51	BL, 3, 6 mo
Demographics and History	Age, race/ethnicity, education, occupation, income weight, dieting, and smoking history	25	BL ONLY

Researcher Interface

Name	Location	Start	Current	Change	Goal	To Go	Last Login	Last Msn
0, WEIGH10	Chapel Hill, NC	218.3 lbs	226.0 lbs	7.7 lbs	208.3 lbs	-17.7 lbs	9m 26d	< 1c
00, WEIGH100	Chapel Hill, NC	151.8 lbs	147.1 lbs	-4.7 lbs	142.8 lbs	-4.3 lbs	5d	< 1c
02, WEIGH102	Chapel Hill, NC	255.0 lbs	223.8 lbs	-31.2 lbs	210.0 lbs	-13.8 lbs	< 1d	< 1c
03, WEIGH103	Chapel Hill, NC	217.7 lbs	216.0 lbs	-1.6 lbs	207.7 lbs	-8.3 lbs	6m 19d	9c
04, WEIGH104	Chapel Hill, NC	176.7 lbs	174.1 lbs	-2.7 lbs	165.3 lbs	-8.7 lbs	-	3m 30c
05, WEIGH105	Chapel Hill, NC	179.3 lbs	180.7 lbs	1.3 lbs	169.3 lbs	-11.4 lbs	-	1c
07, WEIGH107	Chapel Hill, NC	228.4 lbs	240.0 lbs	11.6 lbs	218.4 lbs	-21.6 lbs	5m 10d	3m 7c
2, WEIGH12	Chapel Hill, NC	226.4 lbs	209.0 lbs	-17.4 lbs	216.4 lbs	7.4 lbs	4m 3d	24c
3, WEIGH13	Chapel Hill, NC	265.0 lbs	256.9 lbs	-8.2 lbs	255.0 lbs	-1.9 lbs	5m 8d	3c
4, WEIGH14	Chapel Hill, NC	178.3 lbs	184.8 lbs	6.5 lbs	168.3 lbs	-16.5 lbs	4m 12d	< 1c
5, WEIGH15	Chapel Hill, NC	179.9 lbs	180.1 lbs	0.2 lbs	172.4 lbs	-7.7 lbs	2m 10d	3c
6, WEIGH16	Chapel Hill, NC	186.1 lbs	175.4 lbs	-10.7 lbs	176.1 lbs	0.7 lbs	3m 29d	< 1c
7, WEIGH17	Chapel Hill, NC	208.4 lbs	199.5 lbs	-8.9 lbs	198.4 lbs	-1.1 lbs	9m 13d	3c
8, WEIGH18	Chapel Hill, NC	180.4 lbs	173.4 lbs	-7.0 lbs	170.4 lbs	-3.0 lbs	13d	1c
9, WEIGH19	Chapel Hill, NC	211.9 lbs	209.3 lbs	-2.6 lbs	199.0 lbs	-10.3 lbs	4m 21d	4m 20c
, WEIGH2	Chapel Hill, NC	211.2 lbs	172.8 lbs	-38.4 lbs	201.2 lbs	28.4 lbs	5m 24d	5m 5c
1, WEIGH21	Chapel Hill, NC	208.8 lbs	208.2 lbs	-0.7 lbs	190.1 lbs	-18.1 lbs	2m 6d	< 1c
2, WEIGH22	Chapel Hill, NC	183.7 lbs	184.6 lbs	0.9 lbs	173.7 lbs	-10.9 lbs	5m 18d	< 1c
3, WEIGH23	Chapel Hill, NC	170.0 lbs	163.1 lbs	-6.9 lbs	160.0 lbs	-3.1 lbs	4m 25d	4c

