Predictors of Adherence to Two Doses of Aerobic Exercise in Sedentary, Overweight Individuals

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Addressing the Obesity Epidemic

- Over 39% of the U.S. population are obese (BMI $\geq$30 kg/m^2).
  - 30% of Louisiana's population is higher than the national average by 2-6 percentage points, depending on age.
- Many believe that exercise promotes weight loss
- Exercise training without dietary intervention results in weight loss less than expected (30%).
- How much moderate intensity exercise do we need?
  - Health improvement: ~150 min./wk.
  - Weight loss: >250 min./wk. for clin. sig. loss
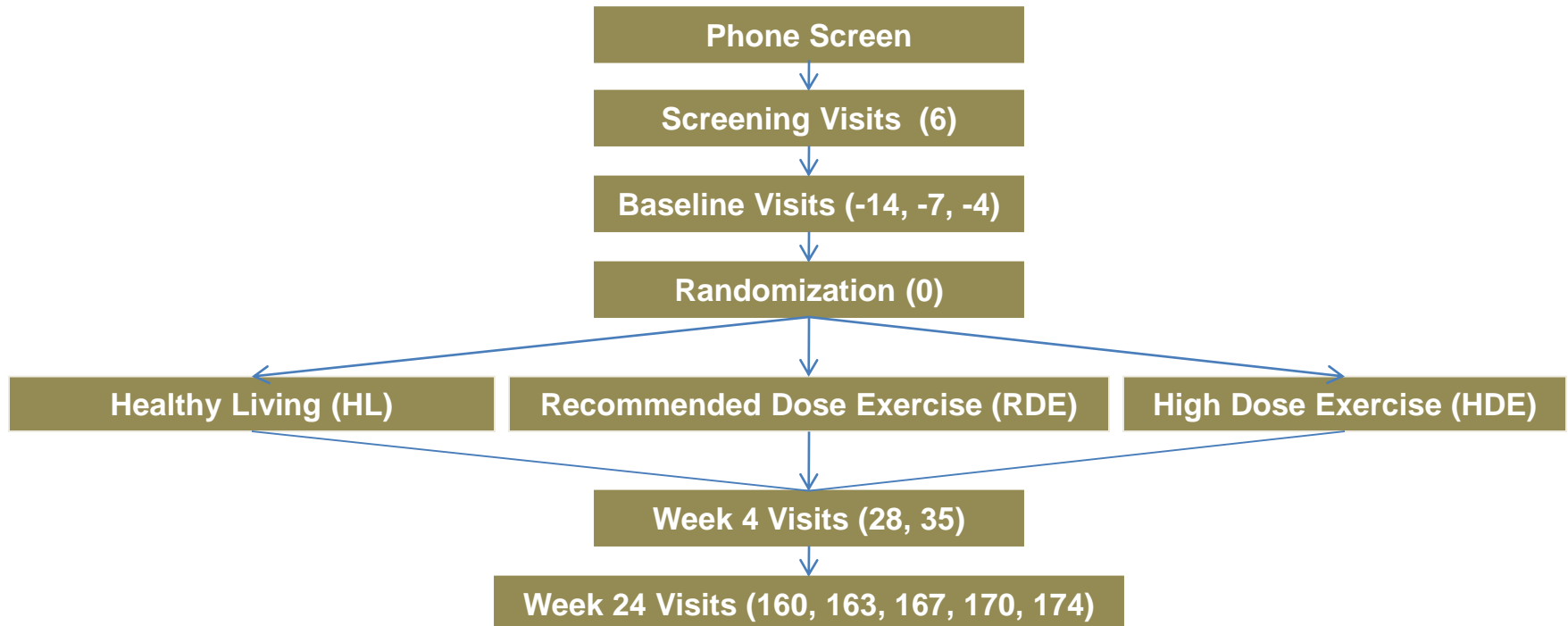 - Weight gain prevention after loss: >250 min./wk.

- E-MECHANIC: Examination of mechanisms of exercise-induced weight compensation
- Designed to compare the effect of two doses of aerobic exercise versus a no-exercise control group on energy intake and weight compensation
  - Recommended Dose Exercise (RDE) – 8 kcal/kg/week (KKW)
  - High Dose Exercise (HDE) – 20 KKW
- Compensation impedes weight loss at higher doses of exercise
  - Increased food intake is hypothesized to be the primary form of compensation
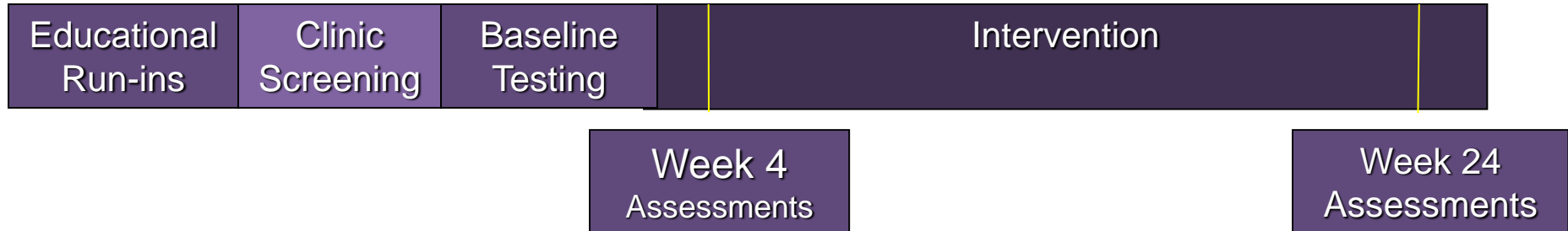
Purpose

- In this secondary analyses, we assessed differences between:
  - study completers/non-completers
  - adherent/non-adherent participants

  on demographics and measures of eating

  attitudes and behaviors.

- Participants were classified as completers if they completed primary outcome measures at week 24.

- Participants were classified as adherent if they completed greater than 80% of the prescribed kcal during the study (exercise groups only).

Research Design

- Healthy adults, ages 18-65 years
- Sedentary (< than 20 mins/day 3 or more days/week)
- BMI 25-45 kg/m^2

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                    Phone Screen
                         ↓
                 Screening Visits (6)
                         ↓
               Baseline Visits (-14, -7, -4)
                         ↓
                  Randomization (0)
          ↙              ↓              ↘
Healthy Living (HL)  Recommended Dose   High Dose Exercise (HDE)
                     Exercise (RDE)
          ↘              ↓              ↙
                Week 4 Visits (28, 35)
                         ↓
        Week 24 Visits (160, 163, 167, 170, 174)
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Study Train Schedule

Educational Run-ins	Clinic Screening	Baseline Testing	Intervention

Week 4 Assessments	Week 24 Assessments

Baseline Characteristics

|	E-MECHANIC
N	198
Gender	74.2% female
Race	63.1% Caucasian
Age	47.6 ± 11.9 yr
BMI	31.5 kg/m^2 ± 4.7

- Intensity:
  - All exercise was completed on a treadmill at 65-85% VO_{2peak}
- Dose:
  - RDE: 8 kcals/kg/week (kkw), approximately 3 days/week at 30-60 minutes per session
  - HDE: 20 kkw, approximately 4-5 days/week at 60-90 minutes per session
- Adherence:
  - (Kcals completed/kcals prescribed)*100
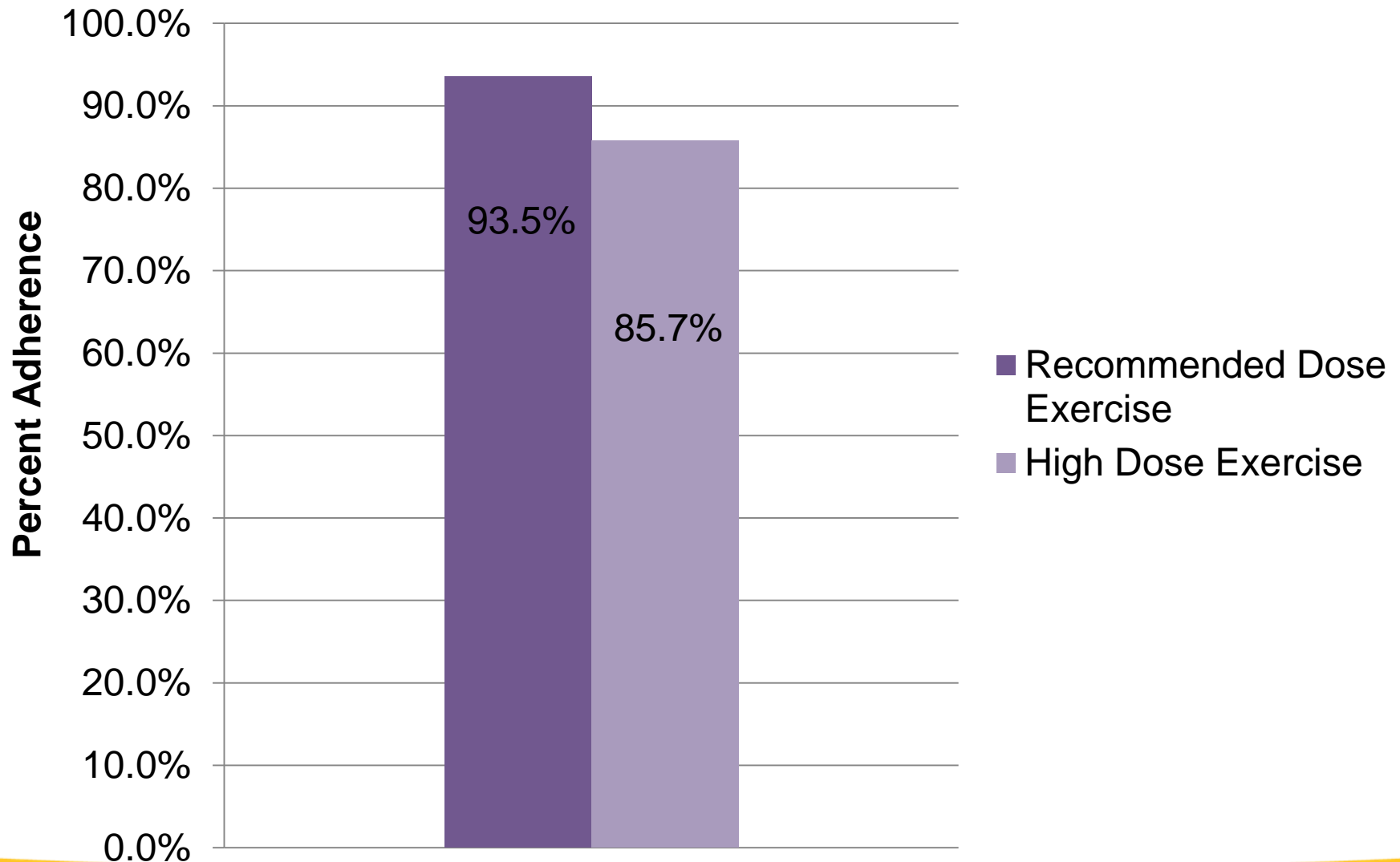
Weekly Exercise Adherence
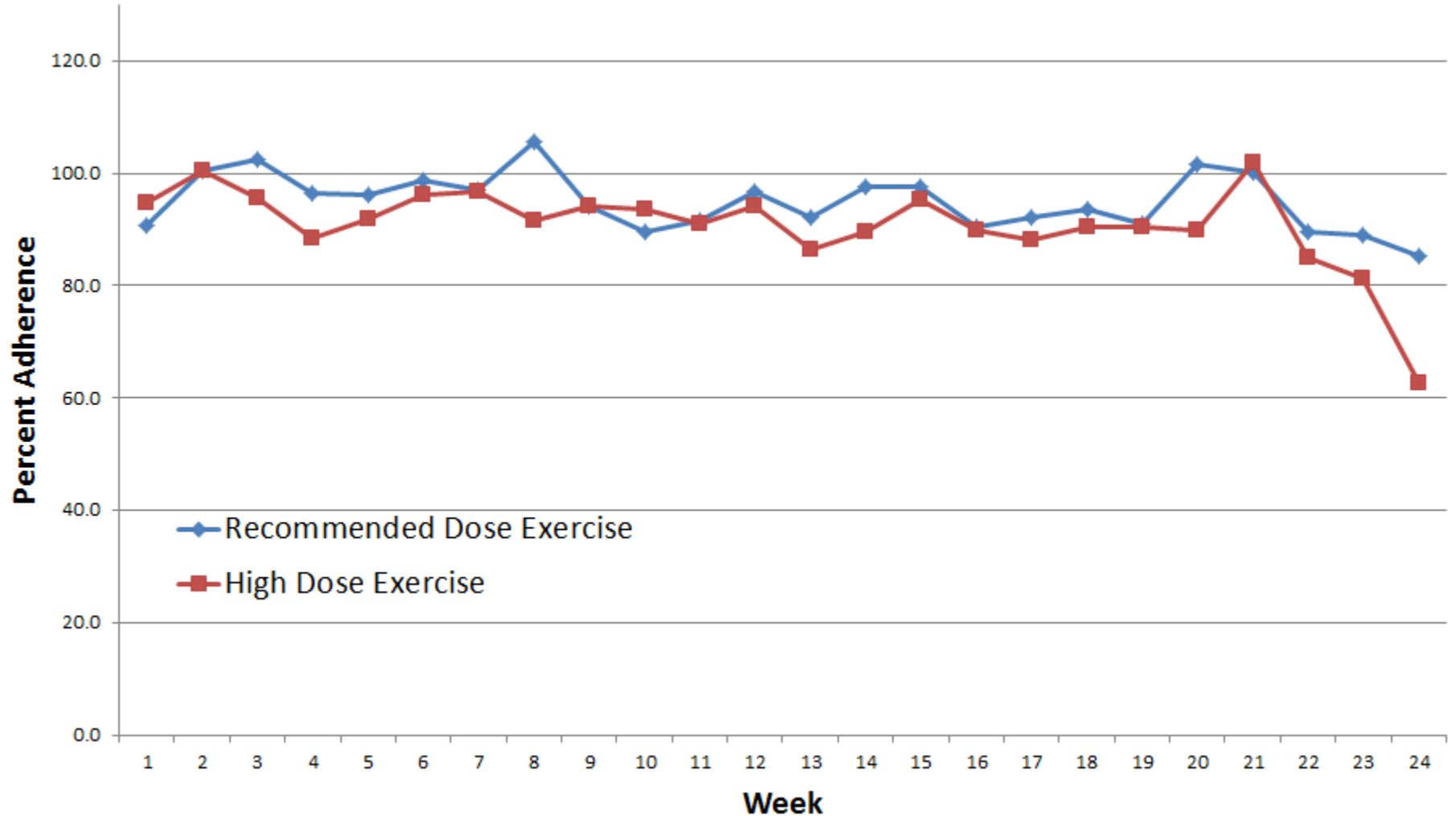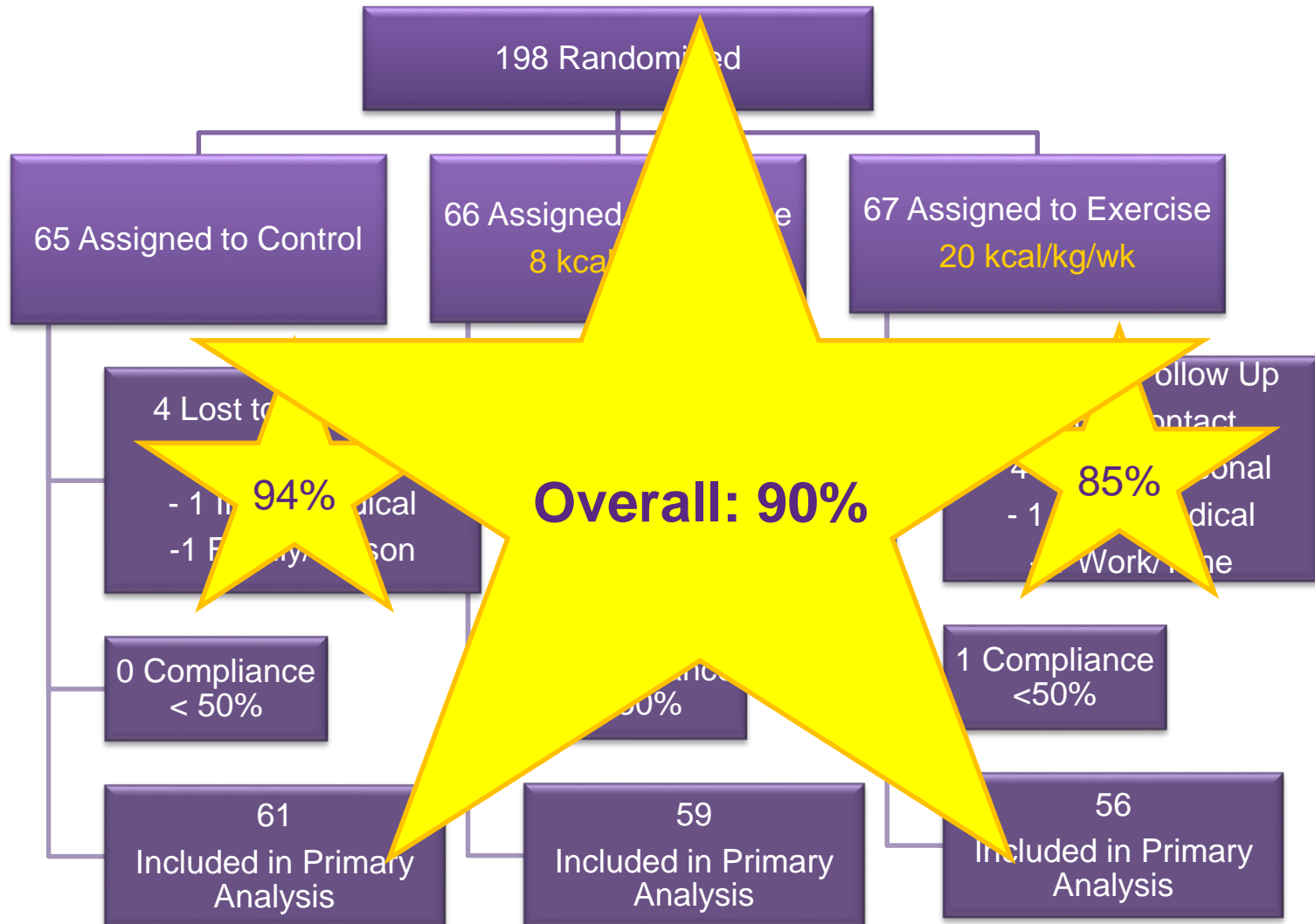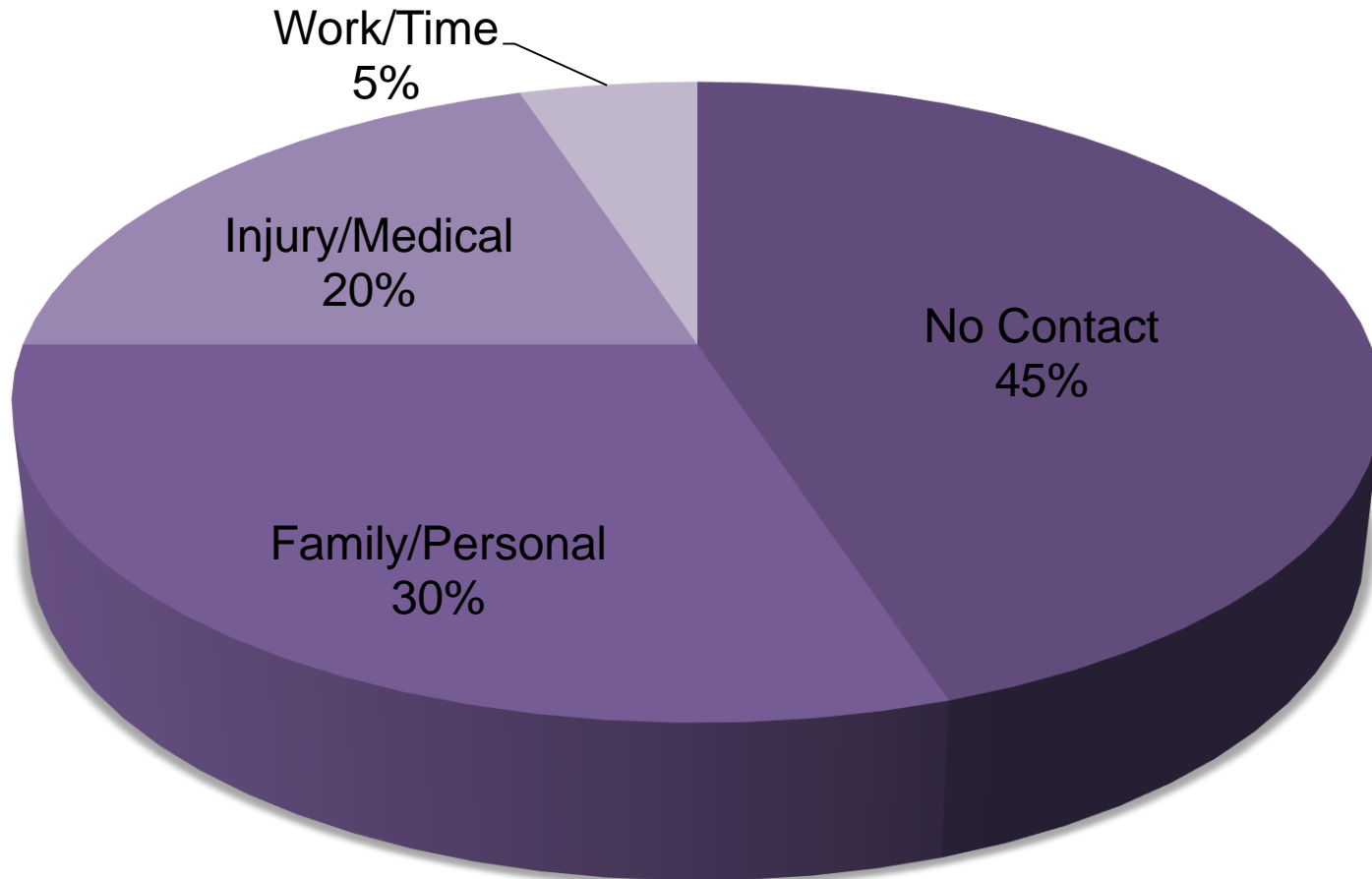
Participant Completion

Non-Completer Reasons

Results

- Compared to non-completers
  - more completers were Caucasian (p<.05), older (p<.01), and had higher levels of restrained eating (p<.05).
- Compared to non-adherent participants
  - more adherent participants were completers (p<.0001), older (p<.0001), and Caucasian (p< .05).
- Education level, marital status, sex, group assignment, disinhibition and hunger were not associated with completion status or intervention adherence.

Additional Analysis Pending

- Primary and secondary outcome analysis underway.

- Preliminary study results show compensation was detected in the two exercise groups.

- Compensation will be compared to intervention adherence and study completion.

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Questions