

# *Ardmore Institute of Health Grant*

## **Report Abstract**

### **Project Title**

Comparing the Effectiveness of two Virtual Lifestyle Medicine Interventions Across Urban and Rural Settings

### **Project Start Date**

2/28/17

### **Project End Date**

4/1/18

### **Anticipated Number of People Impacted**

48 were anticipated to be recruited; 24 for CHIP, 12 rural, 12 urban; 24 for Full Plate, 12 rural, 12 urban.

### **Actual Number of People Impacted**

102 people responded to recruitment; 62 met criteria, were consented and randomized; 44 began the study; 19 were in the CHIP group, 10 rural, 9 urban; 25 were in the Full Plate group, 13 rural, 12 urban; 17 participated in the final data collection.

### **Project Overview**

The objective of this study is to evaluate the effectiveness of two virtual intensive lifestyle modification programs, The Complete Health Improvement Program (CHIP) and Full Plate Living (FP). Forty-six participants were stratified into a rural or urban cohort based on geographic region of residence then randomized into one of two virtual programs (CHIP or FP Tier 2). Enrolled subjects were asked to complete biomarkers, anthropometric measures, and surveys at baseline (T1), five-weeks from intervention start date (T2), and six-months from the intervention start date (T3). Specific measures collected include:

- Fasting lipid panel
- Fasting blood glucose (FBG)
- Hemoglobin A1c (A1c)
- Height and weight, to calculate BMI
- Waist circumference (WC)

- Resting pulse (RP)
- Blood pressure (BP)
- Demographic information
- Chronic disease inventory
- Medications
- Standardized assessment tools:
  - Expanded Adverse Childhood Experiences (ACE) (T1 only)
  - Flourishing Scale (FS)
  - Health-Promoting Lifestyle Profile II (HPLP)
  - Perceived Stress Scale (PSS)
  - Kessler 6 (K6)

## Results

- Small sample size, low participant engagement in the interventions, and incomplete study measures affect the statistical significance of most of the findings of this study, however, the trends are informative.
- A quasi control group arose of nonparticipants (NP) in the intervention who nevertheless participated in the data collection points, allowing us comparison of three groups.
- At T3, CHIP had the best results for sustained weight loss, A1c and FBG improvement, reductions in TG, BP, and WC, and improvements in the FS and PSS.
- FP participants had the best outcomes at T3 on the HPLP, PSQI, and K6.
- The NP group had good outcomes for fasting lipid measurements.

## Use of Funds

This project was funded by two sources:

- Ardmore Institute of Health (AIH): \$50,000
- Lifestyle Medicine Institute (LMI): \$25,000

The anticipated costs were distributed among the two grant accounts.

Of \$75,000 granted, \$62,380.39 was spent, leaving a total residual of \$12,619.61; \$8152.61 in the AIH account, and \$4,467.00 in the LMI account.

### **Grant Summary: Ardmore Institute of Health**

<b>Expense Category</b>	<b>Budget</b>	<b>Expense</b>	<b>Avail Balance</b>
SALARIES AND WAGES	30,204.00	28,710.60	1,493.40
BENEFITS	7,174.00	7,138.29	35.71
PROFESSIONAL SERVICES – Lab Services	2,100.00	540.00	1,560.00
HUMAN SUBJECT PAYMENT	1,530.00	0.00	1530.00
SUPPLIES	1,470.00	0.00	1,470.00
TRAVEL	1,000.00	0.00	1,000.00
INDIRECT COST	6,522.00	5,458.50	1,063.50
	<b>50,000.00</b>	<b>41,847.39</b>	<b>8,152.61</b>

### **Grant Summary: Lifestyle Medicine Institute**

<b>Expense Category</b>	<b>Budget</b>	<b>Expense</b>	<b>Avail Balance</b>
PROFESSIONAL SERVICES: CHIP and FP tuition	23,304.00	19,108.00	4,196.00
SUPPLIES	196.00	0.00	196.00
HUMAN SUBJECT PAYMENT	1,500.00	1,425.00	75.00
	<b>25,000.00</b>	<b>20,533.00</b>	<b>4,467.00</b>

### **Key Challenges**

- Due to the lack of statistical power, calculating statistical significance was not possible for most variables.
- Low engagement occurred throughout, subjects reporting time constraints as the primary reason. The CHIP meeting facilitator reported, in cases where participants attended meetings, some chose to remain out of the video frame, did not engage in discussion, or kept their microphone on mute. FP meeting facilitators reported lack of engagement in the Saturday optional morning video meetings.
- The 24-hour dietary recall, which required considerably more time to complete compared to other surveys (20 minutes compared to 3-4 minutes), was often not finished.
- Completion of biomarker and anthropometric measures was also low. Participants withdrew throughout the intervention period due to the following reasons: lack of time to participate in meetings and/or learning materials, a new health concern, inability to complete measures due to lack of time, or transportation issues.
- This study sample was largely female, well-educated, high income, and covered by health insurance, limiting generalizability.

### **Key Learnings**

- The more rigid time constraints associated with CHIP may have limited engagement.

- In CHIP the higher emphasis in physical activity may have contributed to the increased HDL at T3 and the more pronounced improvement in RP, BP, HPLP and quality of sleep.
- Increased WC at T2 for CHIP and FP may be attributed to temporary bloating caused by the large increase in fiber-rich foods prescribed.
- Overall, the interventions and the NP “control” group all showed weight loss at both time periods, and either maintained or improved their weight loss at the six-month mark. CHIP had the greatest individual percent decrease in weight. FP and NP had virtually identical median percent weight loss, suggesting that those in the NP group who completed evaluations were likely engaging in some lifestyle modification even though they failed to engage in the program content.
- Survey results suggest that both programs improve overall sense of well being.
- It is suggested that those in the study who self-perceived their health and well being to be better were more likely to stop completing surveys at each time period.
- Seasonal climate variation may have played a role in the results of the study.
- ACE correlated strongly with illness and engagement and may be helpful in identifying higher risk program participants who may need more intensive intervention.
- ASA-24 findings were generally consistent with the teachings of CHIP and FP, suggesting that participants actually did follow dietary recommendations.
- Although CHIP appears to produce the better biometric changes, FP participants may be happier.

## Recommendations for Future Projects

### For similar projects:

- Increase the study sample size to increase statistical power.
- Incorporate an information session to ensure understanding of expectations.
- A screening process to assess participant commitment, confidence and readiness.
- Assessment of level of physical activity to correlate changes seen with exercise.
- Home lab testing kits to enhance compliance with the lab results.
- Digital technology to monitor heart rate, BMI and BP to provide feedback to participants as well as data for researchers.
- Social media, such as texting, tweeting and apps as a motivating factor for engagement.
- Mixed methods studies, relying strongly on the qualitative component to better understand “Why?” and “Why not?”
- Monetary incentives and other motivational tools to improve engagement.

### New directions:

- Long-term outcomes and limited follow up are two main gaps in lifestyle medicine research.

A database with registry and regular follow up would help provide this knowledge. To be really meaningful, program standards need defined to ensure that all are providing equivalent therapy.

- More affordable means of delivering lifestyle interventions need developed to allow delivery of lifestyle medicine to impoverished populations.

## **Organization Name**

### **Grantee:**

Ohio University Heritage College of Osteopathic Medicine

### **Partners:**

- Full Plate Living
- Lifestyle Medicine Institute/The Complete Health Improvement Program
- Live Healthy Appalachia

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