

## Leadership Connection 2018 (15-18 September)

### The Effect of a Lifestyle Intervention on Weight Loss in University Employees

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#### Abstract

Obesity and overweight continue to be a major health issue in the United States. This is significant because obesity is a contributing factor for other preventable chronic diseases such as cardiovascular disease, diabetes type 2, osteoarthritis and many cancers (American Heart Association, 2016). Visceral obesity has been linked to increased risk of diabetes type 2, dyslipidemia and cardiovascular disease (Menni, et al., 2016). In addition, those with an increased Body Mass Index (BMI) have a greater incidence of job absenteeism and lower productivity in the workplace (Harvard T.H. Chan School of Public Health, 2016). Even though a movement towards healthier lifestyles seems to be occurring in America, obesity continues to be problematic. Obesity is linked to a sedentary lifestyle and eating oversized portions of high-fat, high-added sugar foods. Lack of accessibility to recreational areas and convenience of fast foods also contribute to the prevalence of obesity (U. S. Department of Health and Human Services, National Institutes of Health, 2016). Measuring percent of body fat versus weight alone is a better indicator of quality loss. Measuring weight loss alone does not take into account loss from body mass, muscle mass, or fluid loss (Garcia-Galbis, Baeza, & Castell, 2015). Bioelectric impedance analysis is a relatively quick and easy method for measuring body fat percentage and studies have confirmed the validity of this method in predominantly healthy adults (Segal, Van Loan, Fitzgerald, Hodgdon, & Van Itallie, 1988; Pencharz & Azcue, 1996; & Kyle, et al., 2004). However, the literature is lacking in studies that measure fat loss, specifically visceral fat, in conjunction with overall weight loss as a means to decrease risk of obesity related diseases. It is estimated that the annual cost of obesity in the United States was \$147 billion in 2008 (CDC, 2017). Individuals with obesity spend around 42% more on direct health care costs—costs related to preventative, diagnostic, and treatment measures—than those of normal weight.

A community based educational intervention was implemented on a college campus aimed at helping university employees lose body weight and fat to decrease risk of chronic disease and to lower organizational health care costs. The Social Cognitive Theory (SCT) was used as a framework for the project. A convenience sample from a mid-sized public university was enrolled for this 12-week project. Participants were recruited via university email and chosen randomly based on the inclusion/exclusion criteria. Participants were scanned using the InBody bioelectric impedance device at pre-intervention, measuring weight, body fat mass, trunk fat mass, and percent body fat. Waist circumference was also measured for evaluation. Participants attended 11 weekly classes on healthy lifestyle education. Participants were weighed weekly and re-scanned at 6- and 12-weeks to assess weight/fat loss. Twenty-eight participants were initially enrolled and 25 completed the project. A comparison of pre- and post-intervention measurements was made using a paired *t*-test, resulting in a statistically significant difference in all five outcome measures ( $p < 0.5$ ). A correlation between number of classes attended and pounds lost using Spearman's rho showed a moderate negative correlation ( $r = -.405, p = .045$ ). Correlations were also made between demographic data and weight/fat loss to determine significance. Average weight loss for the group was -4.64 pounds (range -16.3 - 4.80,  $p < .05$ ) or -2.1% (range -7.6 - 1.8%). For the total group, 16% ( $n=4$ ) lost  $\geq 5\%$  body weight, 20% ( $n=5$ ) lost between 3-5% body weight, 36% ( $n=9$ ) lost between 0- 3% body weight, and 28% ( $n=7$ ) gained weight. Sixty percent of participants ( $n=15$ ) saw a decrease in both their total body fat percent and trunk fat mass. Additionally, 68% ( $n=17$ ) saw a decrease in waist circumference.

Findings from this study support a community based life-style behavior intervention for weight and fat loss for university employees. This program could also be implemented in businesses and corporations who seek to implement a weight loss intervention for their employees.

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**Title:**

The Effect of a Lifestyle Intervention on Weight Loss in University Employees

**Keywords:**

Community based, Weight loss and university employees

**References:**

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### **Abstract Summary:**

Obesity continues to be a health concern. In a university setting, a community based lifestyle behavior intervention was implemented to facilitate employees to lose body weight and body fat. The Inbody device was used to measure project outcomes. Results were significant weight and fat loss in employees.

### **Content Outline:**

Obesity continues to be a major health concern. It is a contributing factor for many chronic illnesses. In the U.S., 69.6% of adults are considered overweight or obese, which is often the result of a sedentary lifestyle or intake of high fat/high sugar foods. Central obesity has been found to be a stronger risk factor in type 2 Diabetes than BMI. Measuring body fat instead of weight alone, is a better indicator of quality weight loss. The use of the InBody bioelectric impedance device measures body fat and lean composition with great accuracy. A literature review of 13 articles on community based weight loss programs showed the positive effects of such programs. Themes that surfaced were group meetings, length of program, costs and electronic modalities for delivery of materials. The theoretical framework for the project was the Social Cognitive Theory (SCT) based on the work of Albert Bandura. This theory postulates that in order for an individual to change they must have knowledge of the risks and benefits associated with change, perceived self-efficacy that they can control their own actions, and expectations that the outcomes will be beneficial. Interventions for this project were designed that allowed the participant to use self-regulatory and self-efficacy strategies to obtain and maintain weight loss. The method for this project was an educational intervention in which weight loss and healthy behavior strategies were taught to overweight and obese employees on a weekly basis. These classes included information on readiness for change, creating a healthy plate, surviving the holidays, healthy grocery shopping, exercise for weight loss, healthy restaurant choices and food cooking demonstrations. Participants were scanned using the InBody device pre-, mid- and post- intervention. Weekly weights were also obtained to promote accountability for the participants. After 12 weeks of the intervention, data were analyzed to determine if outcomes were met. Significant results were noted in weight loss, total body fat loss, percent body fat change, trunk fat mass loss, and waist circumference. A negative correlation was also noted in weight loss and class attendance. The results were consistent with previous research studies and recommendations were made to continue this program at this university. Results can also be transferable to other universities or organizations who wish to implement a weight loss intervention for their employees.

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**Professional Experience:** 2014-Present Nursing Instructor University of Central Arkansas, Conway, AR Responsible for didactic and simulation instruction in a BSN program. 2009-2014 Simulation Coordinator, University of Central Arkansas, Conway, AR Responsible for simulation design and implementation in a BSN program. 1995-2009 Perioperative Nurse, Conway, AR

**Author Summary:** Dr. Gillis has 35 years of nursing experience in the areas of medical-surgical, critical care and perioperative services. She has experience in simulation design and implementation for BSN students as well as didactic instruction in a variety of courses. Her community health nursing focus on health promotion of university employees was the focus of her DNP capstone project.