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# Weight Loss and Improved Metabolic Health Measures Using a One-Week Active Nutrition Jumpstart Program in Overweight and Obese Men and Women

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## Abstract

**Background:** The prevalence of individuals who are obese or overweight is an increasing global epidemic that is associated with a multitude of adverse health conditions. Multiple strategies are available to promote weight loss in these populations, including the use of caloric restriction and/or liquid diets. We determined the impact of a low-calorie, nutrient-dense, primarily liquid diet on body weight and associated measures of metabolic health in overweight and obese men and women. **Methods:** Twenty-six men and women (age: 42.6 ± 10.8) completed a seven-day intervention using the USANA Active Nutrition Jumpstart program, which consisted of consuming three meal replacement shakes and three to four servings of fruits and vegetables, along with a probiotic, three metabolism supplements, and two vitamin packs each day. Pre-post measurements included body composition—determined (via DXA), fasting levels of lipids and glucose in heparinized whole blood, weight, waist circumference, hip circumference, heart rate, and blood pressure. Subjective mood and hunger were also assessed. **Results:** The dietary program was well-tolerated, and the intervention resulted in a mean weight loss of approximately 4.5 pounds. Clinically relevant reductions were noted in systolic and diastolic blood pressure, cholesterol (total and LDL), and glucose. In addition, there were favorable changes in self-esteem, energy, motivation, and physical appearance. **Conclusion:** A one-week period of adherence to the Active Nutrition Jumpstart program positively impacted subjective feelings, while resulting in significant weight loss and other health benefits that may have clinical relevance. Longer-term interventions are needed to sustain these initial results.

## 1. Background

Overweight status (defined by a body mass index of 25 - 29.9 kg/m$^2$), as well as obesity (defined as a body mass index of ≥30 kg/m$^2$), are growing problems within the United States, with an estimated 42% of the population now categorized as obese and close to 75% categorized as either overweight or obese, according to the Centers for Disease Control [1]. Physical inactivity and the excessive intake of dietary energy are the main culprits, with efforts being taken to encourage the adoption of lifestyle modifications to address this concern—knowing that obesity is linked to cardiovascular and metabolic disease, as well as multiple orthopedic problems. While physical activity is an excellent method to combat weight gain, dietary intake is likely the most effective way to battle obesity, as decreasing the food that enters the body can almost always have a greater impact on creating a caloric deficit than increasing caloric expenditure through exercise [2] [3].

Studies have shown that in individuals who are overweight or moderately obese, diet is more effective at weight loss than exercise [2] [4]. This is because the elimination of certain foods can easily lead to a 500 - 1000 calorie deficit per day, while yielding the same loss through exercise would require most individuals to exercise for 1 - 2 hours per day—something that is not feasible for most adults. Further, obese individuals must restrict their caloric intake to a greater degree than individuals who have not been obese, to lose weight [5].

Many "dieters" find that an initial period of very low-calorie intake (~800 - 1000 calories per day) can greatly improve their longer-term weight loss success, possibly by providing motivation (due to the significant and immediate weight loss results) that allows them to continue with their weight loss pursuit [6]. A loss of 3 - 5 pounds within the initial 7 days of a very low-calorie diet is not uncommon and can prove motivating to dieters. To help accomplish this goal, USANA has developed the Active Nutrition Jumpstart program, which is composed of a one-week nutrition plan inclusive of nutrient-dense and fiber-rich meal replacement shakes and supportive supplements that can help facilitate weight loss and provide adequate nutritional support (macro- and micro-nutrients) during a low-calorie feeding period (Active Nutrition Jumpstart Kit, https://usana.com/). The plan is meant to be used during the initial week of a more prolonged weight loss regimen, in an attempt to acclimate individuals to a lower-calorie diet, with the likely result of 3 - 5 pounds of weight loss—which should provide the motivation needed to continue on a longer-term dietary program.

Although decreasing dietary energy using whole foods can be very effective, many busy individuals prefer meal replacement shakes and other dietary supplements

(such as fiber), as these products can be nutrient dense (*i.e.* high nutrient content, allowing for a lower caloric intake while continuing to provide adequate nutrients to maintain health), while proving to be very convenient [7]. Related to the latter, it is clear that when convenient options are provided, dietary adherence is improved resulting in greater weight loss success over time [8] [9] [10]. The Active Nutrition Jumpstart program consists primarily of meal replacement shakes and supportive supplements which minimizes the need for individuals to regularly prepare and package food.

Carrying excess body weight is a major health concern within the United States, and is associated with cancer, cardiovascular disease, Type 2 diabetes mellitus, and sleep apnea [11] [12]. A weight loss target of 5% - 15% is recommended for individuals who are overweight or obese with comorbidities [11] [13], and obtaining such weight loss requires a high level of motivation on the part of the participant. Initial dieting success is well known to provide the motivation to continue, with significant weight loss during the first week of a diet plan as a motivator [14]. Our prior work, inclusive of men and women who are overweight or obese, indicates that restriction of calories is met with weight loss, but also favorable changes in health-related outcomes, such as fasting glucose and insulin, and improvements in antioxidant defenses [15]-[21]. Other investigators have noted similar findings, in addition to psychological and behavioral responses (*i.e.* decreased eating disorder symptoms, decreased depression, and increased quality of life) [22] [23]. In most of our prior weight loss work, we have noted major changes within 1 - 3 weeks of beginning a lower-calorie nutrition plan.

The purpose of this study was to evaluate the impact of the Jumpstart program to facilitate weight loss in a sample of overweight and obese men and women. The study did not only evaluate weight loss, but also other health measures affected by obesity including lipids, glucose, resting heart rate and blood pressure, and perceived wellness. We hypothesized that the Jumpstart program would result in an average 3 - 5 pound weight loss, as well as improvements in bloodborne markers of health, from Day 1 to Day 8.

## 2. Methods

Our target goal was to enroll and complete data collection on a sample of 30 men and women. Due to dropouts, a total of 36 men and women were actually recruited and provided informed consent to complete this study, with 26 of these individuals successfully completing all 3 visits (1 screening visit and 2 test visits). Subjects were 18 - 60 years of age, had a BMI of 28 - 39.9 kg/m$^2$, were without a diagnosis of type 1 or type 2 diabetic or liver disease, did not use tobacco, were not currently taking weight loss dietary supplements or adhering to any weight loss plan, and were not currently taking a multi-vitamin or probiotic. Subjects were asked to refrain from the consumption of alcohol-containing beverages and caffeine, as well as the performance of strenuous exercise, within 24 hours of test-

ing. Female subjects were not pregnant or lactating.

Health history questionnaires were completed by all subjects. Prior to participation, each subject was informed of all procedures, potential risks, and benefits associated with the study through verbal and/or written form, and all subjects signed the informed consent document approved by the University Committee for Human Subjects Research (PRO-FY2022-183).

## 2.1. Initial Laboratory Visit: Screening Visit

During the initial visit to the laboratory, subjects completed the informed consent form and health history questionnaire. Subjects' heart rate and blood pressure, height, weight, waist, and hip circumference were measured. Women were provided with a urine pregnancy test kit at the screening visit and each study visit. They were escorted to a private restroom within the lab and asked to perform the test to confirm that they were not pregnant. Upon completion of the initial screening measures, eligible subjects were scheduled for testing. Subjects were assigned a subject number for privacy protection and scheduled for their initial testing visit. Pre-menopausal women began the study during the first 5 days of their menstrual cycle, in an attempt to control for circulating hormones that are known to fluctuate during the cycle and potentially influence outcome measures.

## 2.2. Study Design

All subjects underwent the intervention to determine changes in pre- and post-intervention outcome variables. The intervention consisted of following the Active Nutrition Jumpstart nutrition plan for 7 days, which included the following for each day: 1) Nutrimeal Active meal replacement shake for breakfast, lunch, and dinner (240 calories × 3 = 720 calories); 240 calories, 9 g fat, 24 g carbohydrate, 8 g fiber, 20 g protein; 2) Metabolism + Tablet (3 times per day, one tablet with each meal); 3) A Probiotic stick pack, containing Mannitol Inulin, Silicon Dioxide, Proprietary Blend (Lactobacillus rhamnosus LGG®, Bifidobacterium BB-12® 12 billion CFU); 4) AM and PM HealthPak™ (vitamin/mineral supplement); 5) A combination of 3 to 4 servings of fruit and/or vegetables.

Considering the above, subjects ingested approximately 1000 calories daily (see Table 3). This is more than a standard "very low-calorie diet" of 800 calories per day, which is often recommended for significant weight loss [24] [25] [26]. For items within the Active Nutrition Jumpstart program, a contract manufacturer produced all products in accordance with Good Manufacturing Practices.

## 2.3. Test Visit Procedures

Subjects reported to the lab following an overnight fast (>10 hours) on two days (Day 1 and Day 8). All outcome variables as indicated below were measured. Blood lipids and glucose (Piccolo Xpress, Abaxis, Union City, CA), body weightand composition (via dual energy X-ray absorptiometry (DXA)), waist and hip

circumference, BMI (calculated), heart rate and blood pressure, perceived wellness (via questionnaire).

Upon arrival to the lab, subjects were asked to void their bladder and bowels. Females self-administered a urine pregnancy test. Subjects then rested in a sitting position for 10 minutes prior to having their heart rate and blood pressure measured (OMRON HEM 907XL, OMRON Healthcare, Tokyo, Japan). Body weight was measured wearing only underwear and a paper gown (Tanita WB-3000, Tanita Corporation, Tokyo, Japan), circumference measures were taken, as well as a blood sample. A whole body (head to toe) DXA scan was conducted for measurement of body composition, using a Horizon A scanner (Hologic, Marlborough, MA). Subjects completed a subjective assessment of wellness. This concluded testing, which lasted approximately one hour. At their first testing visit, all subjects were scheduled for their second testing visit. At the conclusion of the 8th day visit, subject participation was complete and subjects were debriefed.

## 2.4. Physical Activity and Diet

Subjects followed their usual activity patterns over the course of the study period but should have refrained from strenuous activity for the 24 hours preceding each lab test day. No alcohol should have been consumed during the 24 hours prior to each lab test day. During the protocol, diets should have consisted only of the items indicated above (supplements, fruit, and vegetables), as well as non-calorie containing beverages. Diet records were maintained for the 3 days prior to the intervention, and all 7 days of the intervention (including all consumed supplements and fruit/vegetable intake). Dietary data were analyzed for total kcal, macro- and micro-nutrient composition using Food Processor Pro software (Esha Research, Salem, OR).

## 2.5. Data Analysis

The assumptions of outliers and normal distribution of the data were inspected by using box-plots, normal probability plots and the Shapiro-Wilk test of normality. Descriptive statistics were used to outline baseline characteristics (means, standard deviations, frequencies and percentages). Mean changes in anthropometric variables, body composition, biochemical variables, self-reported feelings, and nutrients at baseline and Day 8 were assessed using repeated measures t-tests, confidence intervals, and effect sizes. All analyses were performed using the Statistical Package for the Social Sciences (SPSS for Windows, version 28; SPSS, Chicago, IL). All statistical tests were two-tailed with the significance level represented by $p < 0.05$.

## 3. Results

A total of 26 subjects completed the study. An additional 10 subjects provided informed consent but failed to complete the study due to a loss of interest or

scheduling conflicts. Of the 26 subjects, 21 were women and 5 were men, with a mean age of 42.6 ± 10.8 years. There were no adverse events reported that were related to any of the observed outcomes. However, while subjects appeared to tolerate the Active Nutrition Jumpstart treatment plan very well, one did not complete the study due to digestive upset. While not an outcome measure, two individuals were found to have elevated liver enzymes (which were included as part of the cholesterol panel) following the intervention. It is unknown if this had anything to do with product intake.

### 3.1. Anthropometric Characteristics, Hemodynamics, and Blood Borne Values

Multiple variables had a statistically significant outcome, including a decrease in weight ($p < 0.001$, $d = 2.460$), BMI ($p \leq 0.001$, $d = 2.641$), waist measurement ($p \leq 0.001$, $d = 0.955$), hip measurement ($p \leq 0.001$, $d = 0.766$), fat grams (fat mass) ($p \leq 0.001$, $d = 0.819$), lean grams (fat free mass) ($p \leq 0.001$, $d = 0.943$), systolic blood pressure ($p \leq 0.001$, $d = 0.785$), diastolic blood pressure ($p \leq 0.001$, $d = 2.64$), cholesterol ($p \leq 0.001$, $d = 1.783$), HDL-C ($p \leq 0.001$, $d = 1.172$), nHDL-C ($p \leq 0.001$, $d = 1.528$), TC/HDL-C ($p \leq 0.001$, $d = 0.754$), LDL-C ($p \leq 0.001$, $d = 1.446$), and glucose ($p \leq 0.001$, $d = 0.765$). Results indicated that bone mineral mass, percent fat, percent lean, heart rate, triglycerides, and VLDL were not statistically significantly different pre and post ($p \geq 0.05$). See Table 1 for detailed results.

### 3.2. Subjective Feelings

Feelings of self-esteem ($p \leq 0.001$, $d = -0.853$), energy ($p = 0.034$, $d = -0.441$), motivation ($p = 0.009$, $d = -0.553$), and physical appearance $p \leq 0.001$, $d = -1.048$) were improved following the Jumpstart program. Results indicated that perceived feelings of irritability, focus, hunger, endurance, life satisfaction, and strength were not statistically significantly different pre and post ($p > 0.05$). See Table 2 for detailed results.

### 3.3. Dietary Intake

As expected, there was a statistically significant decrease in calories, carbohydrate, and fat ($p \leq 0.001$) while completing the Jumpstart nutrition plan, but no change for protein $p > 0.05$). See Table 3 for detailed results.

## 4. Discussion

Our findings demonstrate the effectiveness of a low calorie "meal replacement shake" dietary intervention for short-term weight loss, with additional benefits observed related to metabolic health. The Active Nutrition Jumpstart program yielded positive changes in anthropometric variables, as well as biochemical measures of health. Moreover, the overall subjective mood of subjects was improved, which may prove helpful with regards to longer-term adherence to a

**Table 1.** Anthropometric characteristics, hemodynamics, and bloodborne values of 26 men and women before and following seven days on the Active Nutrition Jumpstart dietary program.

| Outcome Measurement (n = 26) | Mean ± SD | p-value | 95% CI for Mean Score Difference | Effect Size |
|---|---|---|---|---|
| Weight (kg) | | | | |
| Pre | 86.87 ± 11.98 | <0.001* | 1.701 and 2.369 | 2.460 |
| Post | 84.84 ± 11.54 | | | |
| BMI (kg/m$^2$) | | | | |
| Pre | 32.70 ± 2.91 | <0.001* | 0.642 and 0.874 | 2.641 |
| Post | 31.94 ± 2.85 | | | |
| Waist (cm) | | | | |
| Pre | 100.53 ± 10.10 | <0.001* | 0.744 and 1.833 | 0.955 |
| Post | 99.24 ± 10.03 | | | |
| Hip (cm) | | | | |
| Pre | 114.12 ± 8.45 | <0.001* | 0.314 and 1.013 | 0.766 |
| Post | 113.45 ± 8.24 | | | |
| Fat (g) | | | | |
| Pre | 30396.15 ± 6781.81 | <0.001* | 387.986 and 1143.321 | 0.819 |
| Post | 29630.50 ± 6560.95 | | | |
| Lean (g) | | | | |
| Pre | 55012.15 ± 11291.26 | <0.001* | 658.317 and 1644.453 | 0.943 |
| Post | 53860.77 ± 10639.59 | | | |
| Bone (g) | | | | |
| Pre | 2228.49 ± 387.29 | 0.074 | −26.808 and 1.343 | −0.365 |
| Post | 2241.23 ± 382.99 | | | |
| Total (g) | | | | |
| Pre | 87637.38 ± 12132.47 | <0.001* | 1524.454 and 2285.008 | 2.023 |
| Post | 85732.65 ± 11554.43 | | | |
| % Fat | | | | |
| Pre | 34.94 ± 6.86 | 0.476 | −0.297 and 0.620 | 0.142 |
| Post | 34.77 ± 6.68 | | | |
| % Lean | | | | |
| Pre | 62.50 ± 6.69 | 0.694 | −0.550 and 0.372 | −0.078 |
| Post | 62.59 ± 6.47 | | | |
| SBP (mmHg) | | | | |
| Pre | 114.88 ± 13.22 | <0.001* | 2.800 and 8.738 | 0.785 |
| Post | 109.12 ± 10.72 | | | |
| DBP (mmHg) | | | | |
| Pre | 77.26 ± 8.78 | 0.044* | 0.064 and 4.166 | 0.417 |
| Post | 75.15 ± 7.34 | | | |
| HR (bpm) | | | | |
| Pre | 70.92 ± 9.01 | 0.523 | −3.218 and 1.679 | −0.127 |
| Post | 71.69 ± 9.02 | | | |
| Chol (mg/dL) | | | | |
| Pre | 177.35 ± 34.10 | <0.001* | 19.932 and 31.606 | 1.783 |
| Post | 151.58 ± 31.15 | | | |

Continued

| | | | | |
|---|---|---|---|---|
| HDL (mg/dL) | | | | |
| Pre | 56.19 ± 11.33 | <0.001* | 2.898 and 5.948 | 1.172 |
| Post | 51.77 ± 11.42 | | | |
| Trig (mg/dL) | | | | |
| Pre | 104.00 ± 64.84 | 0.175 | −5.169 and 26.862 | 0.274 |
| Post | 93.15 ± 35.60 | | | |
| GLU (mg/dL) | | | | |
| Pre | 101.04 ± 18.25 | <0.001* | 3.667 and 11.871 | 0.765 |
| Post | 93.27 ± 13.26 | | | |
| nHDLc (mg/dL) | | | | |
| Pre | 121.23 ± 34.81 | <0.001* | 15.787 and 27.136 | 1.528 |
| Post | 99.77 ± 30.80 | | | |
| TC/H | | | | |
| Pre | 3.30 ± 1.02 | <0.001* | 0.111 and 0.366 | 0.754 |
| Post | 3.06 ± 1.00 | | | |
| LDL (mg/dL) | | | | |
| Pre | 100.42 ± 30.60 | <0.001* | 13.747 and 24.407 | 1.446 |
| Post | 81.35 ± 28.26 | | | |
| VLDL (mg/dL) | | | | |
| Pre | 20.81 ± 12.91 | 0.149 | −0.885 and 5.500 | 0.292 |
| Post | 18.50 ± 7.10 | | | |

Note: *p < 0.05.

weight loss program.

Our findings for weight loss are not surprising, as prior studies support similar results following the adoption of a hypocaloric diet, including a very low calorie diet [27], which the present study did not quite employ. What is perhaps more important is the significant improvement in blood lipids and glucose, as well as blood pressure, after only seven days of adhering to the Jumpstart plan. Specifically, a 15% - 20% decrease in total and LDL cholesterol is noteworthy, with a 5% drop in systolic blood pressure. Although the level of cholesterol as pertaining to disease risk remains controversial [28], it is fairly well-accepted that a reduction in blood pressure is beneficial to overall health and mortality [29]—in particular regarding the reduction in risk of stroke and myocardial infarction.

With regards to the blood lipids, the dramatic decrease in total fat and cholesterol intake (Table 3) may have impacted these findings [30], demonstrating the power of dietary change in terms of blood cholesterol levels—in particular after such a short intervention period of only seven days. The one item of potential concern is the concomitant decrease in HDL-C, which is not uncommon with weight loss [31]. Although the protein intake was not lowered in a significant manner with intervention, it is possible that the lack of animal protein may have influenced this drop in HDL-C, as we have noted previously [15]. It is possible

**Table 2.** Subjective feelings of 26 men and women before and following seven days on the Active Nutrition Jumpstart dietary program.

| Outcome Measurement (n = 26) | Mean ± SD | p-value | 95% CI for Mean Score Difference | Effect Size |
|---|---|---|---|---|
| Self-esteem | | | | |
| Pre | 6.87 ± 1.40 | <0.001* | −1.110 and −0.397 | −0.853 |
| Post | 7.62 ± 1.47 | | | |
| Energy | | | | |
| Pre | 6.47 ± 1.92 | 0.034* | −1.625 and −0.072 | −0.441 |
| Post | 7.32 ± 1.81 | | | |
| Motivation | | | | |
| Pre | 6.38 ± 1.98 | 0.009* | −2.159 and −0.337 | −0.553 |
| Post | 7.63 ± 1.77 | | | |
| Irritability | | | | |
| Pre | 4.50 ± 2.96 | 0.539 | −1.690 and 0.905 | −0.122 |
| Post | 4.90 ± 2.70 | | | |
| Focus | | | | |
| Pre | 6.70 ± 1.52 | 0.286 | −1.111 and 0.343 | −0.214 |
| Post | 7.09 ± 1.60 | | | |
| Hunger | | | | |
| Pre | 5.39 ± 2.26 | 0.815 | −1.721 and 1.367 | −0.046 |
| Post | 5.57 ± 2.67 | | | |
| Endurance | | | | |
| Pre | 6.19 ± 1.76 | 0.245 | −1.360 and 0.364 | −0.233 |
| Post | 6.69 ± 1.90 | | | |
| Life Satisfaction | | | | |
| Pre | 7.66 ± 1.70 | 0.203 | −1.174 and 0.263 | −0.256 |
| Post | 7.79 ± 1.27 | | | |
| Physical Appearance | | | | |
| Pre | 5.23 ± 1.37 | <0.001* | −1.942 and −0.862 | −1.048 |
| Post | 6.93 ± 1.61 | | | |
| Strength | | | | |
| Pre | 6.44 ± 1.73 | 0.146 | −1.131 and 0.177 | −0.295 |
| Post | 6.92 ± 1.80 | | | |

Note: *$p < 0.05$. Values in table range from 0 to 10.

that the addition of small amounts of animal protein to the diet may continue to allow for the reductions in total and LDL-C, while minimizing the loss in HDL-C, as we have noted in prior work [15]. This maintenance in HDL-C may prove beneficial with regards to cardiovascular health.

As our findings were observed in a sample of men and women without a diagnosis of cardiovascular disease, it may be expected that even greater improvements would be observed in a population with known disease and with much

**Table 3.** Dietary intake of 26 men and women before and during seven days on the Active Nutrition Jumpstart dietary program.

| Nutrition Measurement (n = 26) | Mean ± SD | p-value | 95% CI for Mean Score Difference | Effect Size |
|---|---|---|---|---|
| Calories (kcal) | | | | |
| Pre | 1772.02 ± 612.87 | <0.001* | 554.979 and 1041.382 | 1.326 |
| Post | 973.84 ± 46.21 | | | |
| Protein (g) | | | | |
| Pre | 74.89 ± 23.33 | 0.065 | −0.584 and 18.376 | 0.379 |
| Post | 65.99 ± 3.03 | | | |
| Carbohydrates (g) | | | | |
| Pre | 196.88 ± 68.66 | <0.001* | 38.363 and 93.127 | 0.970 |
| Post | 131.13 ± 12.78 | | | |
| Total Fiber (g) | | | | |
| Pre | 15.68 ± 8.13 | <0.001* | −24.058 and −18.324 | −2.985 |
| Post | 36.87 ± 3.25 | | | |
| Sugar (g) | | | | |
| Pre | 69.90 ± 23.08 | 0.192 | −3.400 and 16.109 | 0.263 |
| Post | 63.54 ± 10.74 | | | |
| Fat (g) | | | | |
| Pre | 76.70 ± 31.94 | <0.001* | 47.871 and 74.609 | 1.850 |
| Post | 15.46 ± 2.61 | | | |
| Cholesterol (mg) | | | | |
| Pre | 285.80 ± 173.20 | 0.002* | 48.484 and 189.171 | 0.682 |
| Post | 166.97 ± 3.61 | | | |
| Vitamin C (mg) | | | | |
| Pre | 99.95 ± 152.09 | <0.001* | −1086.116 and −877.278 | −3.797 |
| Post | 1081.65 ± 211.12 | | | |
| Vitamin D (mcg) (n = 23) | | | | |
| Pre | 2.43 ± 1.84 | <0.001* | −67.078 and −54.769 | −4.281 |
| Post | 63.35 ± 14.30 | | | |
| Calcium (mg) | | | | |
| Pre | 636.87 ± 361.54 | <0.001* | −1242.013 and −942.365 | −2.944 |
| Post | 1729.05 ± 101.30 | | | |

Note: The increase from pre to post in vitamin C, vitamin D, and calcium was likely the result of consuming the vitamin pack, which was considered in the analysis. *p < 0.05.

higher starting cholesterol and blood pressure levels. Additional research is necessary to determine such effects.

Aside from the objective measures, subjects reported overall improvements in their self-esteem, physical appearance, and level of energy and motivation. These findings are important, as we know from prior literature that success in weight loss is dictated largely by an individual's motivation to continue on a plan for a protracted period of time [32]. It remains to be determined whether the Active

Nutrition Jumpstart program, or a similar program that may not be as restrictive in terms of minimizing whole food, can yield continued success over a much longer period of time—ideally as a lifestyle approach.

## 5. Conclusion

In summary, the data from our 26 subjects indicate that adhering to the Active Nutrition Jumpstart program for one week resulted in a mean weight loss of approximately 4.5 pounds. In addition, multiple outcomes of clinical relevance were noted, including reductions in blood pressure, cholesterol (total and LDL), and glucose. The drop in blood cholesterol of 15% - 20% for total and LDL-cholesterol, respectively, is impressive for an intervention spanning only one week. Moreover, subjects reported perceived improvements in their self-esteem, energy, motivation, and physical appearance. Finally, the above was achieved without subjects reporting any significant increase in hunger, with values being 5.39 ± 2.26 at baseline, and 5.57 ± 2.67 post-intervention. This is encouraging, as compliance with a dietary regimen is often dictated by the degree of hunger. These data highlight the effectiveness of the 7-day Active Nutrition Jumpstart dietary program in men and women seeking weight loss and improvements in associated variables. A follow-up study is currently underway to evaluate the longer-term effects of the USANA Active Nutrition Transform program on similar outcomes.

## Authors' Contributions

RJB was responsible for the study conceptualization and drafting of the manuscript. JP and AD were responsible for subject recruitment, scheduling, data collection, and data entry. MS was responsible for data analysis. All authors read and approved the final manuscript.

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## Conflicts of Interest

Aside from receiving funding from USANA, no authors have any direct conflicts related to this work.

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