A Retrospective Analysis of Outcomes Following the Introduction of Homeotherapeutic Human Chorionic Gonadotropin in Conjunction with a Restrictive Diet

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Abstract

Objective: To investigate the effects of using an oral homeotherapeutic human chorionic gonadotropin (hCG)product in conjunction with a restrictive diet on weight loss, Body Mass Index (BMI), body fat percentage, mood hunger and waist, hip and extremity circumference in overweight and obese adults.

Methods: A retrospective analysis with no control group was performed. Several measurements were taken as a baseline upon enrollment including: weight, chest circumference, waist, hips, neck, thigh, arm, body fat percentage, and body mass index. Hunger and mood were assessed on a 10-point scale starting after one week of the regimen. Each subject was placed on a restrictive diet along with an oral homeotherapeutic human chorionic gonadotropin product (TrimYou Spray) for 12 weeks with progress being recorded in three week intervals.

Results: Fifteen out of seventeen individuals completed the program, 12 females and 3 males. Analysis of data showed an average weight loss of 21 pounds and revealed significant differences for several other measures.

Conclusion: In this study the use of a homeotherapeutic hCG product and restrictive diet had a positive effect on weight loss. In addition to weight loss, other improvements were seen in chest circumference, waist, hips, neck, thighs, arms, and body fat measurements. More research is warranted in this area to provide a better understanding of its mechanism and to use as a tool in the management of weight challenged individuals.

Keywords: human chorionic gonadotropin, hCG, obese, overweight, KetoMist, TrimYou Spray, hypothalamus, weight loss

Introduction

Millions of Americans have been plagued by the labels of overweight and obese for decades. These labels account for weight ranges greater than what is usually considered healthy for a specified height.[1] The Centers for Disease Control and Prevention (CDC) considers body mass index (BMI) an indicator of health risk related to being overweight or obese and it correlates to the amount of body fat.[1] A BMI between 25 and 29.9 is considered overweight while a BM I greater than or equal to 30 is considered obese.[1]

Some health consequences from being overweight or obese include coronary heart disease, Type II Diabetes, some cancers, hypertension, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, osteoarthritis, gynecological problems, and respiratory problems.[1-4] Managing these weight related health problems places a financial burden on the health care system.[1] Finkelstein et al conducted a study to compute per capita and total medical spending attributable to overweight and obesity.[2] The data revealed that 5.3% of medical spending was attributable to obesity and 3.7% for overweight in the US adult population as a whole.[2] This fact was statistically significant for obesity.[2] According to estimates of the National Health Accounts, $78.5 billion annual medical spending attributable to overweight and obesity now rivals that of smoking.[2]

There are several other factors that could affect one's weight including behavioral, environmental, social, cultural, physiologic, metabolic, or genetic factors.[1-4] Unhealthy eating habits that develop in childhood oftentimes carry over into adulthood, therefore making it very difficult to break this vicious cycle.[1,3,4] A person will make decisions based on their environment that will impact their health and one's environment may make it very easy to overeat and hard to be active.[1,3,4] For example, engaging in video games or perusing channels on television all day definitely decreases opportunities for physical activity. One may live in a community with no sidewalks therefore being forced to drive instead of walk.[1,3,4]

According to the CDC, genes may promote obesity.[5] They contribute to obesity in that they govern how the body adapts to changes in the environment. Studies have shown the variation in genes that could drive specific behaviors like overeating and influence metabolism.[5] Several of these genes have been identified and sometimes, obesity passes down through a family by way of a specific variant on a gene.[5]

A possible hypothesis discussed by the CDC is the Thrifty Genotype.[5] This hypothesis dates back to human ancestors who were believed to have this thrifty gene, which enabled them to accumulate fat during times of famine.[5] Since food is of abundance in modern day society, the thrifty gene has become obsolete.[5] In those who still possess the gene, it is believed that they may be faced with weight challenges because the body continues to store the fat as if going through a famine.[5] The CDC states, "Genes are not destiny. Obesity can be prevented or can be managed in many cases with a combination of diet, physical activity, and medication."[5]

Statistics

Flegal et al conducted a study that revealed about one-third of US adults are obese.[1,6] The CDC has reported that the prevalence of obesity varies from state to state in the US, with at least 12 of the states self reporting BMI of 30% or more (See Figure 1).[1] Also, in 2010 it was revealed that the southern states accounted for 29.4% obesity prevalence and the midwestern states accounted for 28.7%.[1] The northeast and the west showed obesity prevalence at 24.9% and 24.1%, respectively.[1]

The prevalence of obesity is highest in African Americans at 44.1% followed by Hispanic Americans at 39.3%, all Hispanics at 37.9%, and Caucasians at 32.6%.[1] (See Figure 2). The goal of lowering obesity prevalence to 15% proposed in Healthy People 2010 has yet to be reached by any state.[1] The World Health Organization predicts that by 2015 approximately 2.3 billion adults will be overweight and more than 700 million will be obese.[4]

The best way to combat being overweight or obese is a change in lifestyle. This would include becoming active by exercising regularly and following a healthy diet. While this seems like a simple concept, changing the habits associated with these two factors are extremely difficult.[1,3-7]

HCG & Weight Loss

In the early 1950¶s, Dr ATW Simeons, a British physician purportedly discovered how to help people lose weight and excess belly fat using human chorionic gonadotropin (hCG).[8] This hormone is produced in large amounts during pregnancy and has been used to treat infertility.[8] Men who have low levels of testosterone have been treated with hCG to increase those levels.[8] While treating adolescent adiposogenital dystrophic boys, Simeons observed improvements in their undescended testes. In addition, they also lost excess fat stores around the abdomen, hips, and fat pad at the base of the neck.[8] As will be discussed later in this paper, Simeons knew hCG influenced the hypothalamus, therefore he hypothesized that the hypothalamus was in charge of regulating all body fat.[8]

Simeons is said to have devoted several years to experimenting with precise amounts of hCG and specific foods. From this he created a diet in conjunction with a specified amount of hCG to allow people to lose fat in a short time period.[8] This system did not include any exercise.

Simeons reported that injections of hCG created a rapid mobilization of body fat stores and induced feelings of well-being.[9] This made the fat more readily available for metabolic purposes, as opposed to being stationary. Therefore, he stated that hCG reduced weakness and hunger during this very low calorie diet (500kcal/day). He reported that hCG treatment could be used to avoid deficiencies of proteins and vitamins which are very common side-effects of such low caloric intake. He also reported improvement in conditions oftentimes associated with obesity, such as diabetes, cholesterol, gout, ulcers and skin diseases.[9]

Simeons' method has yet to be proven and accepted as a weight loss treatment. It must be mentioned that the Food and Drug Administration (FDA) and the Federal Trade Commission (FTC) have not evaluated homeotherapeutic hCG products for safety or effectiveness. However, hCG is FDA-approved as injections for treatment of infertility and other medical conditions.[10] There are currently no FDA-approved homeotherapeutic hCG products for weight loss on the market. The FDA warns that hCG products labeled ''homeopathic'' should not be taken while following a very low calorie diet as there is no substantial evidence of hCG increasing weight loss outside of the caloric intake reduction.[10] The acting director in the Office of Compliance in FDA's Center for Drug Evaluation and Research stated, ''These HCG products marketed over-the-counter are unproven to help with weight loss and are potentially dangerous even if taken as directed. And a very low calorie diet should only be used under proper medical supervision.''[10]

The purpose of this paper is to describe the results of a weight loss regimen using a homeotherapeutic hCG oral spray in a health spa setting.

Methods

This was a retrospective study approved by the Life University Institutional Review Board. This data was gathered and sent to a third party for analysis. The authors were the third party and did not participate in the study or data collection but only took part in data analysis and writing of this paper. The data were gathered on participants who presented for normal and customary care at a day spa facility. After consenting to have their information used, the subjects began the regimen. The measurements of interest were: weight, body mass index, body fat percentage, circumference of the chest, waist, hips, neck, thighs, and arms. All of these measurements were obtained using standard measuring sites and techniques as listed in Table 1. Table 2 displays the baseline BMI for each participant that was used to confirm whether or not they were overweight or obese for study inclusion. Mood and hunger were also recorded on a scale from 1 to 10; 1=miserable and 10=elated, starting after the first week. The subjects followed the regimen and data were collected for 12 weeks according to the following timeline: Baseline, 1 week, 3 weeks, 6 weeks, 9 weeks, and 12 weeks.

The weight loss regimen consisted of administering KetoMist a homeotherapeutic oral spray, walking and a low calorie diet. KetoMist has been renamed to TrimYou Spray since this study took place, and will therefore be referred to as such throughout the remainder of this paper. Administration consisted of two sprays into the mouth 2x/day, preferably 12 hours apart. The diet was patterned after work done by Simeons, however modifications were made to tailor to today's society. The regimen was structured into four phases. Phase One was two days in duration and did not include any use of TrimYou Spray. Each participant was advised to ingest as much food as possible these two days to fill fat stores and speed metabolism. Foods high in sugar and fat were recommended.

Phase Two was either a ‘‘full round’’ or a ‘‘half round.” A full round meant one participated for 43 days and a half round was 26 days in duration. Depending on the round each participant was directed to dose two times a day with TrimYou Spray and discontinue use after day 26 or day 43. They were encouraged to set a time in the morning and a time in the evening to dose for consistency.

The diet associated with this phase allowed for beverages such as water, tea, and mineral water. These could be consumed in unlimited amounts. Subjects were allowed to eat meats such as skinned chicken breast, crab, shrimp, lobster, white fish, crayfish, veal, buffalo, and venison. A serving of meat was 100 grams. Several vegetables were allowed where one cup was a serving in this category if cooked or solid. Otherwise two cups were appropriate for raw leafy vegetables. Subjects were not allowed to mix vegetables. In regards to fruit, subjects were allowed to consume them in the following proportions: one apple or orange, one cup of strawberries, or ½ grapefruit. Grissini breadsticks were allowed but could be substituted for one Melba toast (Table 3).

Phase Two protocol allowed for two servings from each category in a 24 hour period. Each subject was encouraged to wait until they were hungry to eat, but try not to skip meals. Subjects could consume the juice of one lemon a day and use salt, pepper, etc for seasoning. They could not use oils, butter, or prepared dressings. The meat had to be boiled, baked, or grilled without added fat. On occasion, they were allowed to substitute ¾ cup of fat free cottage cheese, or one whole egg with 4 egg whites for meat protein.

Phase Three, the stability/maintenance phase, was comprised of two 3-week segments, for a total of six weeks. TrimYou Spray was not used during this phase. For the first three weeks, subjects were encouraged to eat whatever they wanted when they wanted with the exception of sugars and starches. Subjects had to weigh themselves everyday and if they found that they had gained two pounds since Phase Two, then they had to have a ‘‘steak day”. Steak day meant they had to skip breakfast and lunch and drink plenty of fluids. In the evening they were allowed to eat a steak with an apple or a raw tomato. The minimum calorie intake during this phase was at least 1,500, to prevent the body from going into starvation mode. The last half of Phase Three followed the same protocol, but now subjects were able to introduce sugars and starches back into their diets.

Phase Four focused on maintaining the weight loss long term. It was recommended that they drink two quarts of water daily, eat 100% organic, and eat raw fresh fruits and vegetables. It was also recommended to consume a limited amount of oils and fats, to exercise and to take a multi vitamin, probiotics, and fish oils. Each was also encouraged to get 6-8 hours of sleep a night and reduce stress.

Results

Data collected through this retrospective review underwent a descriptive statistical analysis using SPSS. There were a total of 17 subjects who participated in the 12-week regimen. Two subjects were removed from the data analysis due to dropping out of the regimen. One dropped out after two days and the other after 5 days. This left data from 15 subjects available for analysis.

Descriptive statistics for age and gender were generated. Paired sample t-tests were completed for baseline and Week 12 measurements for the entire sample. There were a total of 12 females representing 80% of the sample and 3 males representing 20% of the sample (Table 4). Age ranged from 25-59, for a mean age of 45.13 years with a standard deviation of 13.04. The mean age of female subjects was 44.33 and the mean age for the male subjects was 48.33.

The minimum weight lost was 8 lbs and the maximum was 30.5 lbs through Week 12. Data was not recorded for weight, BMI, and body fat during Week 12 for subjects 6, 9, and 5 respectively. The mean weight loss for the entire sample was 21.5 lbs, based on 9 subjects during Week 12. Average weight loss from baseline through week 9, however was 17.5 lbs for the entire sample of 15 subjects. In regards to BMI at Week 12, the average BMI was 31.37 for 6 subjects. Average body fat at week 12 was 37.54 for 10 subjects.

Average body region circumference in addition to weight, body mass index, body fat percentages, mood, and hunger are displayed in Table 5. Table 5 shows average improvement in all measurements as they decreased week to week. Week 9 averages however increased in the neck and left arm before decreasing by Week 12.

A paired sample t-test revealed significance for several measurements when comparing baseline to 12 weeks. The measurements showing statistical significance with weight, chest, waist, hips, neck, both thighs, both arms, and body fat (Table 6) as all p-values were less than 0.05 except BMI.

Measurements showed improvement following the use of TrimYou Spray and related dietary protocol; therefore this regimen was shown to improve weight along with chest, waist, hips, neck, both thighs, both arms, and body fat measurements. Paired sample t-tests for the entire group determined that the changes were statistically significant.

Discussion

According to Simeons, obesity is due to an abnormal functioning of some part of the body.[11] He stated, ‘‘Every ounce of accumulated fat is always the result of the same disorder of certain regulatory mechanisms.’’[11] This suggests that people suffering from this disorder will gain weight no matter how much or how little they eat. While Simeons’ method of treating obesity has stirred controversy concerning the effect of hCG, studies have reported favorable results.[12,13]

In their study, Asher and Harper[12] assessed not only weight loss but the degree of hunger and the feeling of well-being of patients receiving hCG. This was based on the claim by Simeons that patients reported feeling less hungry and felt better overall because of the hCG; therefore they were more apt to complete their treatments.[12] Asher and Harper strictly followed Simeons' protocol for their study.[12] Their results revealed a significantly greater weight loss in the hCG group compared to the placebo group. They felt the hCG somehow warded off the feeling of hunger as the patients reported generally feeling better.[12] The possibility exists that the weight loss was related to the fact that the hCG group just followed the dietary protocol more carefully than the placebo group.[12] Gusman[13] concurred reporting similar results from his clinical observations.

Gusman treated over 2,500 patients following Simeons' hCG protocol. Although he yielded positive results he stated that none of these were double blind or experimental studies.[13] Gusman also addressed the safety of using hCG. His point was that hCG is present in large volumes, sometimes a million units per day, during pregnancy without harming the mother or the fetus, compared to using 125 units per day to treat obesity.[13] There are also several studies that attempt to discredit Simeons' method[14-19] however, Gusman pointed out methodological and interpretative flaws in those studies.[13] Gusman reported on 6 such studies where the investigators modified Simeons' protocol therefore not allowing for an accurate evaluation of the effects of hCG on weight loss and resulting in a less than favorable conclusion of its effectiveness.[13]

Gusman reported that studies by Sohar and Carne followed Simeons' method, had positive results, but still concluded that hCG was either a placebo or not of great value. Gusman reported on a study by Kalina who did not get good results and therefore concluded the protocol was ineffective.[13] Gusman criticized a study by Craig et al where subjects had some weight loss but the diet was modified and included many foods not recommended in the original Simeons' protocol.[13] They also incorporated lab testing which showed no change in value over the course of the study concluding that hCG had no effect on any organ system in the body.[13]

In the study by Frank, Gusman points out several methodological flaws.[13] Frank altered the diet and technique to the extent that it was unrecognizable from the original protocol.[13] The diet was changed from 500 to 1,030 calories per day. Instead of deep, intramuscular, daily injections, they were administered three days a week subcutaneously.[13]

Birmingham and Smith investigated the value of hCG in the management of obesity by reviewing 6 double blinded studies.[14] They found that with the exception of one study, none of them showed hCG to be of any value to weight loss, but in turn having the potential to cause harm.[14] Greenway and Bray conducted a randomized double-blind study to test the claims of Simeons' method in the treatment of obesity.[15] Over the course of 6 weeks, they found that there were no significant differences between the hCG group and the placebo group in terms of weight loss. The only difference noted was a higher anxiety level for the hCG group at the start of the

study. [15] It was noted that the participants lost weight due to their strict adherence to the 500 calorie diet. The hCG injections, however did not provide any additional effects according to the authors. [15] Studies conducted by Stein et al and Young et al also concurred with these results.[16, 17]

Shetty and Kalkhoff tested Simeons' method in a controlled hospital setting.[18] The double blind study included 11 obese hospitalized women.[18] They completed a 9 day control period which was followed by a 30 day experimental period.[18] They reported that the weight loss between the two groups were nearly identical which led them to the conclusion that hCG has no place in the management of weight reduction in the obese patient.[18]

Bosch et al conducted a double blind, placebo controlled trial to test the validity of benefits of hCG in the treatment of obesity.[19] They included 40 obese women who received daily intramuscular injections of saline or hCG six days a week for six weeks.[19] Each was allowed a diet of 1,200 calories a day.[19] Simeons' protocol calls for a 500 calorie daily diet. The results showed that the group receiving hCG injections where of no additional advantages over the placebo saline injection group.[19] They concluded that there is no rationale for the use of hCG injections in treating obesity.[19]

Frank reported his results from using hCG in the treatment of obesity.[20] Although he made several modifications to Simeons' protocol, he concluded that the weight loss between the two groups showed no significant differences.[20]

Miller and Schneiderman evaluated the use the of hCG in weight reduction using a double blind crossover method.[21] This study designed allowed for them to compare each patient to himself under the two study conditions: hCG and placebo.[21] There were a total of 19 participants in the study, of which 8 finished the study.[21] The 8 week comparison revealed no difference in weight loss, missed injections, mood, or hunger.[21] However, when comparing the first four weeks to the second four weeks, they saw a significant decrease in weight loss and a significant increase in the number of missed injections during the second four weeks of the study.[21]

Lastly, in an effort to assess if there was any scientific evidence to support the use of hCG in the treatment of obesity, Lijesen et al conducted a meta analysis of published papers on 8 uncontrolled and 16 controlled trials.[22] This meta analysis included each of the previous mentioned studies. The criteria was set and each study was evaluated and scored accordingly.[22] Scores for methodological quality ranged from 16-73.[22] A score less than 50 was deemed unsatisfactory as far as methods were concerned.[22] The 14 randomized controlled trials had the highest scores, 12 of which were over 50, but they also reported that the weight loss with hCG was no greater than that of the placebo groups or with the use of diet only.[22] Of those 12, two of them reported positive outcomes. There were 10 non-randomized trials of which seven reported positive outcomes.[22] They concluded that there is no scientific evidence that shows that hCG causes weight loss, a redistribution of fat, wards off hunger, or induces feelings of well-being,

therefore concluding hCG should be regarded as an inappropriate treatment for obesity and weight loss.[22]

The only study found in the literature that addressed homeotherapeutic hCG was a case study by Morningstar and Strauchman.[23] This case described a male patient who participated in a homeotherapeutic hCG regimen following Simeons' protocol.[23] He did four 30-day periods over which time he reported favorable results in weight loss, cardiovascular risk factors, and assessment tools.[23] It is unclear as to how the homeotherapeutic hCG compares to the injectable hCG as no other studies have been done.[23]

Hypothalamus

The hypothalamus is located in the area of the brain that controls a plethora of autonomic functions, including fat storage.[24] Due to its well entrenched relationship with structures of the endocrine and autonomic nervous system, it plays an important role in maintaining homeostasis.[24] It is also the regulator of temperature, food and water intake, and the sleep-wake cycle.[24]

The ventromedial nucleus of the hypothalamus controls eating.[24] A lesion or damage to this area will result in overeating, obesity, and an increase in irritable moods or aggressive behavior.[24] In contrast, lesions to the lateral region of the hypothalamus will lead to anorexia.[24] This competing rivalry makes up the set point for body weight.[24] Set point theory is a theory that the body maintains its normal weight and body fat level with internal regulatory controls that dictate how much fat one has.[24] Some have a high setting, meaning they tend to have a naturally higher weight as a set point and others have a low set point, therefore a naturally lower body weight.[24] Set point suggests that despite dieting efforts, the body tends to return to its set point weight. However, regular, consistent exercise may help to adjust the natural set point.[24]

This means that when body weight goes below set point, the lateral hypothalamus is activated therefore increasing appetite. When weight goes above the set point, the ventromedial nucleus is activated to decrease appetite.

Mechanism

The mechanism as to why or how the hCG method works is still unknown, so we propose a possible explanation. The hypothalamus is in control of involuntary functions, including fat storage,[11,24] and it thinks we should still be hunter gatherers, so as society evolved and we started eating scheduled meals with much higher caloric intake, the hypothalamus hit its limit of calories it knew how to process.[25] To compensate, the excess calories were stored in abnormal long term fat storage areas such as the hips. Due to this abnormal storage nature, this deemed the excess calories inaccessible and therefore the inability to be used as energy. This provides an explanation as to why a person who is losing weight by reducing calories or through bariatric surgery may appear gaunt and still have large hips or a bulging stomach.[23]

Using hCG in combination with a very low calorie diet may trick the hypothalamus into thinking the person is in starvation mode so it then releases calories from the abnormal fat stores for survival.[23] Once the hCG is active in one¶s system, the 500 calorie diet in addition to the release of the long stored fat provides the body with an adequate amount of calories for a day. Perhaps the daily administration of hCG aids in warding off the feelings of hunger and irritability to allow the individual to complete the treatment protocol.[23] In summary, one would technically be thriving due to the calories released from the fat stores versus food intake.

Limitations

The retrospective design of this study along with the absence of a control group presents limitations to this study. Aside from having a small sample size, missing data also posed a challenge during data analysis. The administration of hCG has traditionally been through medical clinics and under the supervision of a medical doctor, whereas this study used a homeotherapeutic hCG preparation and was conducted in a spa facility setting with administration being done through its therapists. Another factor is that this study could not account for other elements of lifestyle that may have influenced the outcomes.

Conclusion

This paper described a homeotherapeutic hCG weight loss regimen used in conjunction with a low calorie diet that had a positive effect on weight loss and other anthropometric measures. The data showed statistically significant improvements in several anthropometric measurements. More research is warranted in this area to provide a better understanding of the mechanisms involved and also to possibly provide a useful guide in the management of weight challenged individuals.

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Figures & Tables

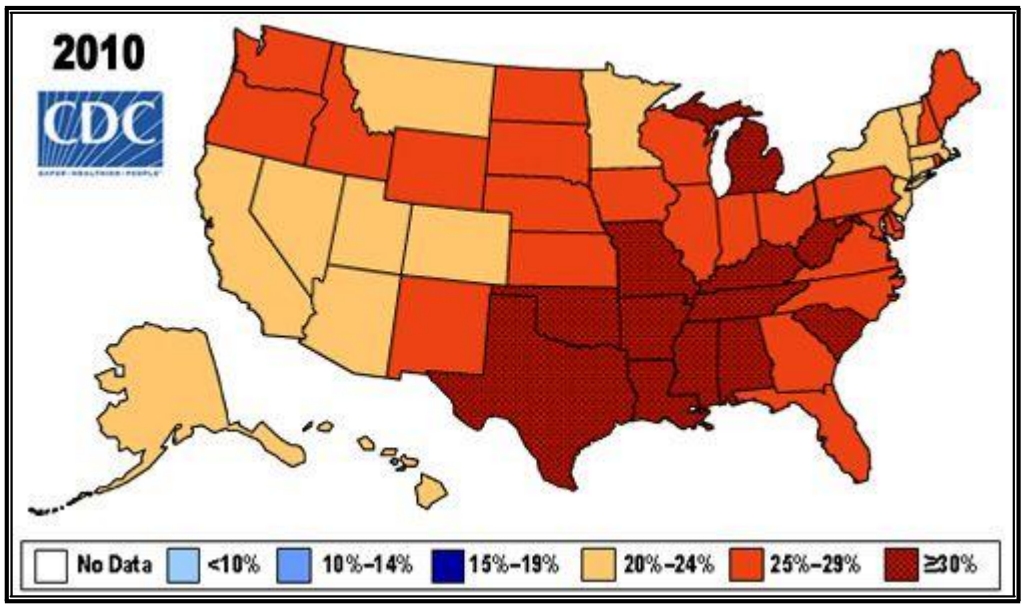

Figure 1. Percent of Obese adults in the US based on BMI for 2010 Reproduced from Behavioral Risk Factor Surveillance System, CDC

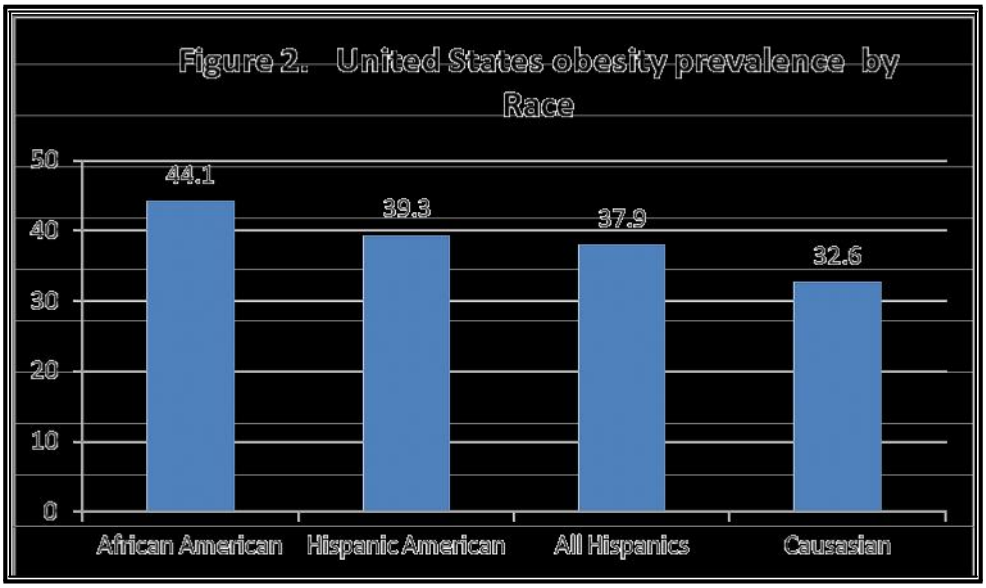

Figure 2. United States obesity prevalence by Race

Table 1. Standard Measuring Sites and Techniques	
Weight (lbs)	Weight was obtained via a traditional scale.
Chest (ins)	Taken at largest circumference, usually around nipple line. Have subject lift arms out to side, place tape around chest, and then have them lower arms to side. Make sure tape stays level around back.
Waist (ins)	Smallest circumference between chest and buttocks. Not where you would measure the waist for a pair of pants, but normally a couple of inches higher just below the base of the rib cage. Tends to get lower with age and experience. If not smaller than chest or buttocks then take largest circumference of waist area.
Hips (ins)	Taken at widest circumference of lower hips. Make sure to keep the tape level
Neck (ins)	Taken in middle of neck at largest circumference.
Right Thigh (ins)	Taken at upper thigh about an inch or so down from crotch line.
Left Thigh (ins)	
Right Arm (ins)	Take smallest circumference just above elbow joint.
Left Arm (ins)	
BMI (kg/m)	Body Mass Index Calculator -- http://www.nhlbisupport.com/bmi/
Body Fat (%)	Body Fat Calculator -- http://www.bmi-calculator.net/body-fat-calculator/
Mood	Mood and hunger were self reported on a scale from 1 to 10; 1=miserable and 10=elated, starting after one week of following the protocol.
Hunger	

Table 2. Baseline BMI (A BMI between 25 and 29.9 is considered overweight while a BMI greater than or equal to 30 is considered obese.)

SUBJECT	BMIB
1	28.8
2	29.1
3	29.1
4	28.8
5	23.3
6	33.4
7	31.7
8	37.2
9	41.2
10	38
11	40.3
12	29.9
13	32
14	44.1
15	30.8

Table 3. Consumption Guidelines by Phase			
Phase One	Phase Two	Phase Three	Phase Four
Any foods high in Sugar and Fat	Water, Tea, and Mineral Water	Any foods, with the exception of Sugars and Starches for 3 weeks	Drink two quarts of water daily Eat 100% organic Eat raw fresh fruits and vegetables Consume a limited amount of oils and fats Exercise Take a multi vitamin, probiotics, and fish oils. Get 6-8 hours of sleep a night and reduce stress
	Skinned Chicken Breast, Crab, Shrimp, Lobster, White Fish, Crayfish, Veal, Buffalo, and Venison	Any foods, Sugars, and Starches for 3 weeks	
	Spinach, Chard, Chicory, Beet-Greens, Green Leaf Lettuce, Tomatoes, Celery, Fennel, Onion, Red Radishes, Cucumber, Asparagus, and Cabbage		
	Apples, Strawberries, Grapefruit, Oranges		
	Grissini breadsticks or Melba toast		

Table 4. Age and Gender						
Sample	Frequency	Percent	Mean age	Standard Deviation	Min	Max
Female	12	80	44.33	12.514	25	58
Male	3	20	48.33	17.616	28	59
Entire sample	15	100	45.13	13.04	25	59

Table 5. Measures by Weekly Intervals						
	Baseline	Week 1	Week 3	Week 6	Week 9	Week 12
Weight (lbs)	205.81 (39.25)	199.44 (36.14)	195.50 (36.04)	193.60 (34.47)	176.49 (49.81)	171.60 (27.31)
Chest (ins)	44.93 (2.96)	44.93 (2.96)	44.87 (3.00)	43.68 (2.69)	42.43 (2.27)	41.78 (2.11)
Waist (ins)	40.85 (5.55)	40.85 (5.54)	40.65 (5.74)	39.03 (5.68)	37.82 (5.74)	36.48 (5.40)
Hips (ins)	46.88 (3.73)	46.88 (3.73)	46.08 (3.36)	44.01 (3.35)	40.30 (7.78)	40.88 (3.13)
Neck (ins)	15.05 (1.52)	15.05 (1.51)	15.04 (1.53)	14.63 (1.32)	15.22 (3.77)	13.9 (1.23)
Right Thigh (ins)	25.48 (2.21)	25.48 (2.21)	25.38 (2.26)	24.46 (2.09)	23.83 (1.95)	23.23 (1.81)
Left Thigh (ins)	25.40 (2.00)	25.40 (2.0)	25.18 (2.18)	24.23 (1.91)	22.83 (2.27)	23.14 (1.91)
Right Arm (ins)	14.19(2.18)	14.19 (2.18)	14.19 (2.18)	13.53 (2.00)	12.83 (1.78)	12.61 (1.75)
Left Arm (ins)	13.95 (1.87)	13.95 (1.87)	14.02 (1.77)	13.63 (1.74)	14.64 (7.38)	12.63 (1.57)
BMI (kg/m)	33.18 (5.75)	32.59 (5.013)	31.98 (4.91)	31.68 (4.90)	29.70 (3.96)	31.36 (5.60)
Body Fat (%)	43.64 (7.16)	43.68 (6.94)	42.97 (7.21)	40.85 (7.04)	37.43 (4.42)	37.54 (6.21)
Mood	----------	8.20 (1.52)	8.73 (0.79)	8.73 (0.70)	9.13 (0.83)	9.47 (0.64)
Hunger	----------	7.87 (2.03)	7.27 (1.48)	7.20 (1.47)	7.33 (1.49)	8.00 (1.96)

Table 6. Paired Samples Test Comparing Baseline to Week 12

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	WEIGHTB - WEIGHT12	21.5778	7.6757	2.5586	15.6777	27.4779	8.434	8	.000
Pair 2	CHESTB - CHEST12	3.1533	1.3479	.3480	2.4069	3.8998	9.060	14	.000
Pair 3	WAISTB - WAIST12	4.3700	1.4595	.3769	3.5617	5.1783	11.596	14	.000
Pair 4	HIPSB - HIPS12	6.00000	3.78555	.97742	3.90363	8.09637	6.139	14	.000
Pair 5	NECKB - NECK12	1.1250	.6260	.1673	.7636	1.4864	6.725	13	.000
Pair 6	RTHIGHB - RTHIGH12	2.2500	.7676	.1982	1.8249	2.6751	11.352	14	.000
Pair 7	LTHIGHB - LTHIGH12	2.2533	1.0988	.2837	1.6449	2.8618	7.943	14	.000
Pair 8	RARMB - RARM12	1.57000	.90155	.23278	1.07074	2.06926	6.745	14	.000
Pair 9	LARMB - LARM12	1.3167	.7645	.1974	.8933	1.7401	6.670	14	.000
Pair 10	BMIB - BMI12	3.0167	4.8590	1.9837	-2.0825	8.1159	1.521	5	.189
Pair 11	BODYFATB - BODYFAT12	7.8400	5.0047	1.5826	4.2598	11.4202	4.954	9	.001