

## Food is the Cause and the Cure for the Obesity Epidemic

F Buck Willis<sup>1\*</sup> and Sheri M Brackman<sup>2</sup>

<sup>1</sup>Galveston Clinical Research, 6341 Stewart Rd #115, Galveston, TX 77441, USA

<sup>2</sup>Rightsize Weight Loss Clinic, 6217 Central City Blvd, Galveston TX 77551, USA

### \*Corresponding author

F Buck Willis, Galveston Clinical Research, 6341 Stewart Rd #115, Galveston, TX 77441, Tel: 1+ (409) 457-7894; USA

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### Abstract

Recent evidence has shown that consuming food products which cause inflammatory or leukocyte reactions are significant causes of weight gain, while eating natural foods has been shown to elevate basal metabolic rates necessary for weight loss. The obesity epidemic continues to rise because the causes of this disease are not being successfully identified and counteracted.

In 2016 the World Health Organization (WHO) estimated that over 900 million adults are categorical obese (Body Mass Index > 30) and that another 340 million children are overweight or obese. This is a curable disease, however obesity now causes more deaths globally, more than being malnourished (starving).

It is estimated that in the USA (2019) over 131 million adults are obese (40% US population) and the British NIH completed an exhaustive study of patient admissions in 2019 showing that "the majority of adults in England were overweight or obese." The British obese population exceeds an additional 13.4 million adults were obese (BMI > 30). The purpose of this manuscript is to identify the evidence-based protocols designed for identifying the causes of the obesity and for determining an effective treatment of this disease.

**Keywords:** Leukocyte Reactions, Natural Foods, Weight Loss

### Introduction

Obesity is the largest epidemic that has ever burdened our countries and it currently affects over 900 million adults [1-10]. This disease is often overlooked but the population with this obesity has tripled since 1975. Identification of effective treatment methods is now urgent [1,2]. Many authors have proposed that the first step to stopping this disease growth is to identify and eliminate the causes [1,5-9]. While exercise has been shown beneficial in weight loss, it does not address the underlying cause of this disease [6].

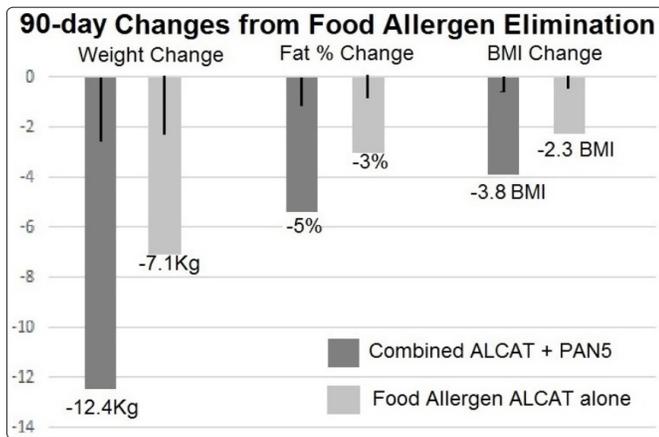
In correlated studies, it has been estimated that sub-acute Food allergies could affect up to 75% of the US population [1,7,8,10]. While food allergy testing and elimination have been studied for reduction of migraine headaches and intestinal disorders, the research has been limited in determining the efficacy of food allergy elimination in obesity reduction [11,12].

A comparison study by Willis, et al. in 2018 used food allergen testing/elimination as the control method, versus food allergen elimination combined with other protocols for obesity reduction. (The additional protocols included eating single portion-size

servings, eating more frequently, eating natural or raw foods more often, and the addition of high intensity, 2-minute Aerobic-surge exercises (5/day) [5].

After signing informed consent in that study, all subjects (N=17) had Leukocyte Reaction testing completed (ALCAT test, Cell Science Systems, Deerfield Beach, FL). The ALCAT testing examined reactions to 237 foods and the subjects showed an average of 26 significant reactions for each subject. Those foods were eliminated in this 90-day study. The subject's mean age was 50, BMI = 34, 7/10 men/women). No other weight loss treatment methods, diets, or exercise regimes were employed during this controlled trial. The dependent variables were change in weight (kg), Body Fat %, and change in BMI.

After 90-days all subjects showed significant changes ( $p = 0.001$ ), and a significant difference was seen between groups ( $F = 51.66$ ,  $p = 0.001$ ). See Figure 1. The changes in weight, percent body fat, and BMI were homogeneous by gender, and despite the small power, the standard deviations were small (< 5% of mean). In conclusion there was significant evidence that hidden food allergies may be one meaningful cause of the growing obesity epidemic and eliminating food allergens will decrease daily weight gains (in chronic obesity).



**Figure 1:** Comparison Study Results, Willis, et al. 2018 [5]

A previous study, Lewis, et al. tested 120 overweight subjects for IgG reactions to food allergens (mean age 45.5, BMI = 29). Foods that had a positive reaction were removed in experimental subjects diet for 90 days. These subjects saw significant changes in weight and waist/hip circumferences. The mean differences between experimental vs control subjects were as follows: Weight (- 5kg, P<0.01) and Waist circumference (-5.4cm, P<0.01). However, that particular study did not test for IgE or IgM (Immunoglobulin) reactions [8].

The incidence of acute, food-allergy reactions has been estimated to be over 21% in the USA while sub-acute allergies effect up to 74% [1,7,9]. In a review article, Dr. Chen said that it would be logical to assume that the same immune reactions (or sensitivities) responsible for migraine headaches and irritable Bowel Syndrome (IBS) could also be contributing to obesity as a chronic disease [7]. She differentiates allergic reactions from ‘sensitivities’ by categorizing Life-threatening reactions as acute. However, sub-acute reactions are still originated in the immune system [1,5].

“Food intolerance” is a term used in IBS and Ali, et al. showed how Leukocyte reaction (ALCAT) testing and food allergen elimination was beneficial for IBS patients [12]. That randomized, controlled trial examined changes in the IBS Global Improvement Scale (GIS) and quality of life (N=58). ALCAT testing was performed, to examine Leukocyte Reaction from 237 foods, and then subjects were randomly assigned to either a Food Allergen elimination 4-week diet (Experimental) or a sham diet that did not reduce the allergens (control). (The sham diet was a different choice of foods, but that did not conform to food allergen elimination).

The experimental group showed significant improvement in the GIS scores at four weeks (p=.004) and eight weeks (p=0.02) in comparison to the control subjects. The control group did not display significant changes (p> 0.05). Eliminating the food allergens reduced inflammation which benefited those patients by reduced symptom scores [12]. This is similar to how food allergen elimination benefited subjects in other studies [5,6,11].

Eating natural, unprocessed foods has been popular topic in numerous studies and a systematic review was performed to see how this benefits subjects across 12 studies with a total of 2,230 subjects [5,13-21]. Magkos, et al. discussed how food hazards in

conventional foods (pesticides) were found detrimental in numerous studies. (Table 2. lists the major chemicals used in pesticides.) In testing for residual biochemical in both organic food products compared to conventional food products. Organic foods showed a frequency of residual chemicals in 20% of fruits tested compared to over 85% of conventionally farmed fruits. Organic products are not perfect, but Magkos, et al. showed how there was a dramatic difference in safety of foods to be ingested [14].

**Table 2: Pesticide Chemicals**

• Organophosphates
• Carbamates
• Pyrethroids
• Insect hormones and analogues
• Compounds that affect other metabolic pathways
• Compounds that affect insect behavior
• Aryloxyalkanoic acids
• 2-(4-aryloxyphenoxy)propionic acids
• Triazines
• Fungicides
• Metabolites

How do organic or natural foods affect weight gain and weight loss? A significant study examined differences from changing one’s diet from packaged, processed foods to natural foods [15]. Polsen ,et al. compared the Average Danish Diet (ADD, control) to the New Nordic Diet (NND, Experimental). The NND group removed the processed foods and substituted with natural foods (high in fruits, vegetables, fish, and whole grains). In that study 181 obese subjects (mean age 42, BMI > 30) were randomly selected to either the NND group or ADD for 26-weeks.

The dependent variables were changes in weight, fat, waist circumferences, and blood pressure for the NND vs Average group. The NND subjects showed mean weight changes of -4.7 kg vs -1.5kg for the ADD group with a statistically significant difference (P < 0.001). There were also significant changes in Fat between the groups (1.87% difference, P < 0.001), waist circumference (-2.94cm difference, P < 0.001), and in Systolic blood pressure (-5.13 mm Hg difference, P < 0.001) [15]. These subjects did not change their exercise routines and this was the significant change from packaged, processed foods in the daily diet to all natural foods.

The concept of “Eat More and Lose Weight” has been popular but not well utilized. In a WebMD article Wendy Fries discusses this protocol by showing that only 20% of Americans consume five pieces of fruit or vegetables each day and that has an inverse relationship to the over 75% of overweight Americans. One publication suggests that raw foods have much greater nutrient density than cooked foods [17]. Satiety has been shown to be greater from natural foods than packaged “chips” or candy bars. Remember the potato chip commercial “You can never eat just one.” That is a physiological fact, based on lack of satiety from heavily processed potato chips [1]. Further, consuming raw and natural fruits can help peristalsis, lower blood pressure, reduce cancer, drop blood pressure, lower cholesterol, treat erectile dysfunction, reduce inflammation, and empower obesity reduction [1,11-24].

But how does this affect obese children? Torbahn, et al. showed efficacy of both portion control and eating natural foods in treating childhood obesity. In their study of 279 pediatric patients, a

preliminary nutritional assessment was completed by the parents, (Subject ages 8 – 16, BMI  $\geq$  90% percentile to 97<sup>th</sup> percentile) [23]. Their interventions including portion-sized controls, reduced “eating rate” (speed), and increasing the frequency of eating “red, green, and yellow” natural foods (as opposed to packaged snack foods that were previously eaten). A significant change was noted in BMI for those patients at both one and two years ( $P < 0.01$ ) [23].

The quality of foods consumed by the obese population is also a significant variable. While we know that most raw foods have higher nutrient density, how does that compare to the all-American fast foods? A recent study by Liu, et al. (2020) compared foods from full service restaurants (FS) to fast food restaurants (FF). They found that between the years of 2003 and 2016, subjects (N=35,015 adults) consumed over 21% of their foods from restaurants [24].

They determined that both the category of FS and FF products were of low quality as ranked by the American Heart Association (31.6 and 27.6 out of 80 total points) [23]. If one of five meals consumed by Americans is a low quality product (FF being the most common breakfast food) then how could this stop or reverse the obesity epidemic?

Obesity continues to rise on all continents and one solution to reverse this epidemic is to identify and remove the causes such as sub-acute food allergens while consuming more natural, raw, nutrient dense foods. The purpose of this manuscript is to identify the evidence-based protocols used in both identifying the causes of the obesity and used for effective treatment of this disease.

**Competing Interest:** No author had competing interest.

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