

Effectiveness of the Atkins Diet as a Treatment of Weight Reduction

Siti Khadijah Jasni^{*}, Nurul Atiqah Osman, Nur Syaza Tajola'aurus
Noorazleena Azlan, Mohammad Nasir Abdullah

Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA (Perak), Seri Iskandar, Perak

^{*} E-mail of the corresponding author: khadijahjasni@live.com

Abstract

The Atkins diet is a low-carbohydrate and high-protein diet created by Robert C. Atkins. The diet works when the body changes into state of ketosis because of drastically restricting of carbohydrate intake, which means it burns its own fat to convert into energy. The objective of the study is to determine the effectiveness of Atkins diet by measuring the weight before and after practicing the diet. The method used was a cross-sectional study. The finding showed that there was statistically significant difference between weights before and weight after. Thus, low-carbohydrate and high-protein and fat diet (Atkins diet) was effective.

Keywords: Atkins diet, Facebook, Paired t-test

1. Introduction

Obesity is classified as an epidemic and since 1980, number of those suffer from obesity has doubled worldwide by the World Health Organization (WHO, 2013). Approximately more than 1.4 billion adults age range 20 years and older were overweight in 2008 (WHO, 2013). Of this number of overweight adults, over 200 million men and almost 300 million women were obese (WHO, 2013). In 2011, more than 40 million children under age of five were overweight (WHO, 2013). Overweight and obesity have been ranked number five risk for global death (WHO, 2013). Every year, 2.8 million adults died due to overweight or obese (WHO, 2013). Overweight and obesity always related to medical conditions such as cardiovascular disease, osteoarthritis, and several cancers such as breast and colon (WHO, 2013).

In Malaysia, obesity has reached an epidemic proportion. Based on the National Health and Morbidity Survey, 2.6 million adults were obese while more than 477 00 below 18 were overweight (Aliza Shah and Arumugam, 2013). Children as young as seven suffer from obesity due to poor diet and an increasingly sedentary lifestyle (Aliza Shah and Arumugam, 2013). According to the Survey on the Nutritional Status and Dietary Habits of Primary Schoolchildren, 12.8 percent of primary school students were obese in 2008 (Aliza Shah and Arumugam, 2013). Obesity since childhood may lead to many medical conditions such as cardiovascular diseases, diabetes and osteoarthritis in later years, and worse it could lead to premature death (Aliza Shah and Arumugam, 2013). In 2011, approximately 17 million Malaysian suffer from non-communicable diseases: 2.6 million suffer from diabetes, 5.8 million suffer from hypertension and 6.2 million suffer from high cholesterol (Aliza Shah and Arumugam, 2013).

The Atkins Diet has 4 phases: Induction, On-going weight loss, Pre-maintenance, and Lifetime maintenance to reduce and maintain weight (Scott, 2009). According to Dr. Atkins' theory and belief, high consumption of carbohydrates and sugar lead to increase in the production of insulin: a hormone that stimulates the storage of calories as fat and thus increase weight (Klein, 2013). The Atkins diet restricts the intake of carbohydrates in order to force our body to metabolize fat to produce energy (Klein, 2013).

A study was conducted for one year involving both male and female who suffer from obesity by (Foster *et al.*, 2003) 63 people were randomly assigned to either four types of diet: a low-carbohydrate and high-protein, high-fat and a low-calorie, high-carbohydrate and low-fat diet. Those practiced low-carbohydrates diet had lost more weight than the low-fat diet for the first three months (mean $[\pm SD]$, -6.8 ± 5.0 vs. -2.7 ± 3.7 percent of body weight; P -value=0.001) and 6 months (-7.0 ± 6.5 vs. -3.2 ± 5.6 percent of body weight, P -value=0.02). However, after 12 month, the difference was not significant (-4.4 ± 6.7 vs. -2.5 ± 6.3 percent of body weight, P -value=0.26). After three months, the study found that there was no significant difference between low-carbohydrates and low-fat diet or low-density lipoprotein cholesterol concentration. The low-carbohydrates group, their high-density lipoprotein was greater than low fat-diet while triglyceride concentration were lower than low-fat diet. The diastolic blood pressure and the insulin response to an oral glucose load decreased for both diets. Thus, we can conclude that from this study, the low-carbohydrate diets losses more weight which the difference were approximately four percent than the low-fat diet for the first six months. Nevertheless, the differences were not significant after the next six months (Foster *et al.*, 2003). The purpose of this study was to study the effectiveness of Atkins diet by measuring the weight before and after practicing the diet.

2. Method

The research design was a cross sectional study. Under this type of research design, this study should be representative of the population from the findings are to have any validity (Charles H. Hennekens, 1987). In this study, the target respondents were all the people in Malaysia. The population in this study focuses on all Facebook user. The sample size was 100 respondents. The sampling frame was the people who joined a club in Facebook named Diet Atkins Club. The sampling technique used was simple random sampling. By using this technique, the sample was selected from the population in such a way that each item has the same chance of being selected as a sample. The inclusion criteria for this study were the individuals who joined in the Atkins Diet Club and interested to lose their body weight. The exclusion criteria of practitioners were incompletes response from respondents. A set of questionnaire were constructed purposely to ask for demographic profile which were determining the practitioners' background. It has six questions which were gender, age, weight before, weight after, height and period of practicing the diet in month(s). The statistical analysis tools were used in the study was paired t-test. The main software that used for data entry and data analysis was IBM SPSS (Statistical Software for Social Science) (Corp, Released 2011). At the beginning of the analysis, the checked and cleaned to avoid any missing data. Before conducting paired t-test analysis, the normality of the data was checked by taking the difference between two measureable variables (weight before and weight after).

3. Results

Based on the Table 1, it shows that the number of female was higher than male ($n= 66$ vs. 34). The mean age of the respondents was $27.29(5.508)$. Then, the mean of height was $163.01(9.240)$ and the mean of period dieting was $12.75(10.212)$.

Next, based on Table 2, paired t-test analysis was performed to measure the difference between weight before entering the Atkins programs and weight after enrolled the program. It was found that, there were statistical significant differences on weight before and after (p -value < 0.001 ; t -statistic: 11.161). Furthermore, the mean weight after (Mean: 73.79 ; SD: 16.790) was slightly lower compared to weight before (Mean: 89.24 ; SD: 23.527). There was 95% confidence that the mean differences of weight loss before and after between 12.703 and 18.197 .

4. Discussion

This study revealed that there were significant weight reductions for a person enrolling into Atkins programs. This result was supported by a study done in United States where it compared four weight-loss diets: Atkins, Zone, LEARN and Ornish diets by (Gardner *et al.*, 2007) were conducted for twelve months in United States from February 2003 until October 2005 with 311 subjects. Found that those who practice the Atkins diet lost more weight than the other three diets groups for twelve months. The mean twelve months weight loss between the Atkins and Zone diets was significantly different (P -value < 0.05).

5. Conclusion

In a nutshell, diet with lower carbohydrate and higher in protein and fat (Atkins Diet) are effective. This is because many had succeeded in losing their weight since they started practicing the diet

Acknowledgement

The authors would like to acknowledge Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA (Perak), Seri Iskandar, Perak.

References

- Aliza Shah & Arumugam, T. (2013). Pupils as young as 7 are obese. New Strait Times, 10.
- Charles H. Hennekens, J. E. B. (1987). Epidemiology in Medicine. 1st ed.: Little, Brown and Co. Corp, I. (Released 2011). IBM SPSS Statistics for Windows, Version 20.0. IBM Corp.
- Foster, G. D., Wyatt, H. R., Hill, J. O., McGuckin, B. G., Brill, C., Mohammed, B. S., Szapary, P. O., Rader, D. J., Edman, J. S. & Klein, S. (2003). A Randomized Trial of a Low-Carbohydrate Diet for Obesity. New England Journal of Medicine, 348 (21), 2082-2090.
- Gardner, C. D., Kiazand, A., Alhassan, S., Kim, S., Stafford, R. S., Balise, R. R., Kraemer, H. C. & King, A. C. (2007). Comparison of the Atkins, Zone, Ornish, and LEARN diets for change in weight and related risk factors among overweight premenopausal women: the A TO Z Weight Loss Study: a randomized trial. JAMA, 297 (9), 969-77.
- Klein, A. (2013). Atkins Diet: What You Need to Know. Discovery Fit & Health.
- Scott, J. R. (2009). An Overview of The Atkins Diet. About.com.
- WHO (2013). Obesity and overweight.

Table 1: Descriptive Statistics for the Demographic Profile

Variable	Mean (SD ^a)	n (% ^b)
Gender		
Male		34 (34.0)
Female		66 (66.0)
Age	27.92 (5.508)	
Weight After	73.79 (16.790)	
Weight Before	89.24 (23.527)	
Height	163.01 (9.240)	
Period of dieting	12.75 (10.212)	

^a Standard deviation

^b Percentage

Table 2: Difference between weight before and weight after of practicing Atkins Diet (n=100)

Variable	Mean (SD ^a)		Mean of Weight Loss (95% CI ^b)	t-statistic (df ^c)	p – value ^d
	Before	After			
Weight Loss	89.24 (23.527)	73.79 (16.790)	15.450 (12.703,18.197)	11.161 (99)	<0.001

^a Standard Deviation

^b Confidence Interval

^c Degree of Freedom

^d Paired t-Test

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:

<http://www.iiste.org>

CALL FOR JOURNAL PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** <http://www.iiste.org/journals/> The IISTE editorial team promises to review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

Recent conferences: <http://www.iiste.org/conference/>

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

