Effects of Consumption of Campus Buka Diets on Some Health indicators of apparently Healthy Students of Abia State University Uturu

Abstract

The aim of this study was to determine the effect of consumption of Campus Buka Diets on some health indicators of apparently healthy students of Abia State University, Uturu. A total of 350 students were randomly selected from the various faculties that constitute the university. They were sorted according to sex. Inclusion criteria were the instrument for selecting subjects. Blood sample was aseptically collected into suitable containers. Analysis to determine Haemoglobin levels (Hb), Packed Cell Volume (PCV), and White Blood Cell (WBC), monocyte, lymphocyte, neutrophils, basophil and eosinophils. Being on buka diets for three months reduced Hb, PCV, WBC, neutrophil, lymphocyte below reference values in male subjects, this was similar to what obtains for their female counterparts where lymphocyte was within reference range. Eosinophil in both male and female subjects was reportedly higher than that reported for the reference values. Monocytes and basophils were within reference range in both female and male subjects in addition to lymphocytes for males. In conclusion, Campus Buka Diets (CBDs) can be said to be unhealthy to consumption, the right action needs to be invoked to stimulate the cafeteria system for proper service delivery.

Keywords: Diet, Buka, Consumption, Campus, Lymphocytes

Introduction

Food primarily determines the nutritional status, health and consequently the productivity of a population and therefore must be wholesome and safe to consumption [1]. Research has shown that lifespan can be elongated through frequent consumption of nutritious and hygienically prepared meals [2]. Frequent consumption of such meals had been implicated in healthier diets [3], students while on campus for diverse reasons such as lack of cooking skill, time, accessibility to fresh ingredient among others [4] rely on convenience foods to meet daily dietary needs [5].

The bukas are local eateries permitted by the university management to operate within the university campus. The role of the campus bukas to academic activities within the campus cannot be overemphasized. Developing countries have been identified as the hub of food borne diseases at global level, local eateries located in and around busy centers such as schools, motor parks, and streets in Nigeria contribute maximally in propagating this fact which had been attributed the use of unsafe water for cleaning cooking utensils and cooking, unhygienic food processing and handling approach, in addition to lack of adequate storage infrastructure and most importantly inadequate or poorly enforced regulatory standard [6].

Adequate regulation of the activities of the local eateries (Bukas) within the university campus is possible with informed policies guided by the outcome of goal oriented researches aimed at unveiling the effect of consumption of diets served at the bukas on the health of the students who mainly depend on such diets to meet their daily nutritional needs.

Methodology

Ethical clearance

Ethical clearance was sought and obtained from the ethical committee of the College of Medical and Health Sciences of Abia State University Uturu and informed consent of the students was obtained through the student Union.

Study population

Inclusion criteria

Students who are resident within the university and feed from the campus buka at least twice a day and are neither treating any neither form of infection nor are consuming antibiotics.

Selection of test population

A total of 350 students aged 16-20 randomly selected from each of the departments that constitute the various faculty of the university.

Hematological analysis on blood sample

Blood samples were collected by veno-puncture for the determination of hemoglobin (Hb), packed cell volume (PCV), White Blood Cell Count (WBC), Total differentials according to the procedure reported by [7].

Statistical analysis

Data generated were analysed using SPSS (Ver. 23) and mean values compared using paired t-test expressed as Mean ± Standard Deviation p-values less than 0.05 were considered statistically significant.

Results

Table 1: Effect of Buka Diets on the Hematological Indices of Male students

Parameters	Initial values	Values after 3 months	Reference Range
Hb (g/dL)	14.8±1.0	10.5±1.8	13-17
PCV (%)	44.2±5.4	34.0±3.2	39-51
WBC (×10^{9L})	7.6±3.75	4.2±2.5	5.0-10.4
Neutrophil (%)	43.8±04	36.8±3.6	40-51
Lymphocyte (%)	43.0±2.7	40.9±3.2	36-45
Monocytes (%)	5.10±1.2	5.0±0.1	3-6
Basophils (%)	0.4±0.8	0.8±0.1	0.5-1

Eosinophils (%)	7.7±1.7	16.5±2.3	0.5-8

Results are expressed as mean ± standard deviation. P<0.05 is significantly different

Table 2: Effect of Buka Diets on the Hematological Indices of Female students

Parameters	Initial values	Values after 3 months	Reference Range
Hb (g/dL)	13.6±0.2	9.4±1.85	12-15
PCV (%)	41.4±0.6	31.4±3.55	36-45
WBC (×10^{9L})	6.8±3.5	4.8±3.2	5.0-10.4
Neutrophil (%)	43.6±3.2	36.6±0.3	40-51
Lymphocyte (%)	41.3±0.3	40.1±2.7	36-45
Monocytes (%)	5.2±0.75	5.0±0.7	3-6
Basophils (%)	0.6±0.6	0.8±0.5	0-1
Eosinophils (%)	10.3±2.3	16.5±0.2	0.5-10

Results are expressed as mean ± standard deviation. P<0.05 is significantly different

Discussion

Food is essential for the growth of an organism, in order to obtain the healthiest content from food, conscientious effort must be employed to retain the highest nutrient portion during preparation. Table 1-2 show the effect of campus diets on the hematological indices of male and female students of Abia State University, Uturu respectively indicating that there was a reduction in the levels of hemoglobin (Hb), Packed Cell Volume (PCV), White Blood Cell (WBC), neutrophils, lymphocyte, monocyte and basophil after three months of being on the "buka" diets while a contrary observation was made on eosinophils. It is worthy to note that the values recorded after three months of being on "buka" diets for Hb, PCV, WBC, neutrophil, lymphocyte and eosinophil were not in conformity with the reference values for the subjects. This could be attributed to loss of certain nutrients critical to build the blood cells to cooking. This is substantiated by the claim of Tygagi [8] that customary cooking methods cause loss of nutrients notably trace elements and vitamins in foods. Micronutrients contribute to the body's natural defense by promoting antibody production [9]. Vitamins A, B6, B12, D, E, folic acid and trace elements such as Zn, Cu, and selenium all of which are essential to antibodies production are thermo labile and thus are liable to diminish in cooking. Overall, inadequate intake and status of these vitamins and trace elements may lead to suppressed immunity [9]. This fact is consistent with the findings of Ezeilo [10] who through his study established that Zambian Student nurses in Lusaka University Teaching Hospital fed balanced diet for eight months had improved blood values similar to those of the Caucasians.

Reference

[1] Chandrashekar U. Food Science and Applications in Indian Cookery. Phoenix Publishing House Pvt. Ltd. 2002.

[2] Chen RCY, Lee MS, Chang YH, Wahlqvist ML. Cooking frequency may enhance survival in Taiwanese elderly. Public Health Nutr 2012; 15:1142-9.

[3] Han GS. Dietary assessment and frequency of home meals according to the socio-economic characteristics of Korean adults: data from the Korea Nutritional Health and Nutrition Examination Survey 2013–2015. Korean J Community Living Sci; 2018; 29:169-83.

[4] George C. What keeps Columbus cooking? A survey of cooking behavior [dissertation]. Columbus, OH: The Ohio State University; 2017.

[5] Hartmann C, Dohle S, Siegrist M. Importance of cooking skills for balanced food choices. Appetite **2013**; 65, 125–131.

[6] WHO estimates of the global burden of foodborne diseases: foodborne disease burden epidemiology reference group 2007-2015.

[7] Dacie JV and Lewis SM. Practical Haematology. 9th Edition Churchill Livingstone. 2000

[8] Tyagi SB, Mamta K, Tanushri S. Impact of cooking on nutritional content of food. DU Journal of Undergraduate Research and Innovation. 2015; 3 180-186.

[9] Silvia M, Eva S, Wintergerst SB and Dietrich H. Selected vitamins and trace elements support immune function by strengthening epithelial barriers and cellular and humoral immune responses. British Journal of Nutrition. 2007; 9 81, 29–S35.

[10] Ezeilo GC, Obi GO. Neutripenia in Apparently Healthy Nigerian Students. Nig. J. Physiol Sci. 1983; 1(2):1-6.