

## Assessment of Knowledge about Risk Effects of Fast Foods and its Relation to Antioxidants among Students of Hail University

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### Abstract

Fast food is the term given to food that can be prepared and served very quickly. Fast food can also be defined as any food that contributes little or no nutrient value to the diet, but instead provides excess calories and fat. Overeating of fast foods increase the level of cholesterol. cholesterol is harmful. It is not the cholesterol which causes the problem, but the oxidized cholesterol, the cholesterol which has been damaged by free radicals. also, high fat content of fast foods is bad that polyunsaturated fat has multiple double bonds which can become oxidized and cause an increased production of free radicals and increased incidence of colon cancer. The National Institutes of Health (NIH) defined fast foods as quick, easily accessible and cheap alternatives to home-cooked meals, also tend to be high in saturated fat, sugar, salt and calories. When fast foods frequently replaces nutritious foods in diet, it can lead to poor nutrition and poor health in digestive and cardiovascular systems, respiratory system and central nervous system. The purpose of this study was to study the harmful effects of fast foods due to increased production of free radicals and the role of Antioxidants in preventing them from harming the body. A cross sectional survey was planned to evaluate health knowledge about effect of Fast foods and antioxidants on health among students of Hail University through a previously standardized self-administered questionnaire for questions related to their dietary habits, preferences, knowledge about fast foods, its harmful effect on health, types of fast foods, frequency of consumption and antioxidants. Results from this study highlight the importance of identification of the health risk behaviors through excessive uses of fast foods and the need to promote healthy diet.

**Keywords:** Fast Foods; Antioxidants; Healthy Foods Intervention as a Source of Antioxidants

### Introduction

Fast food is the worst enemy of human health these days. Most health problems of this century worldwide are being caused by the bad nutrition and the high cost of good quality food, a contributor of this is fast food. It is a fact that fast food is killing people slowly and most people are not even aware of the effects is having on their health. It can create health problems like obesity, cholesterol problems, diabetes and heart problems this are just few of effects that this type of food is causing. According to the National Institutes of Health, some fast food meals give a whole day's worth of calories. When fast food frequently replaces nutritious foods in diet, it can

lead to poor nutrition and poor health [1]. Generally the harmful effects of fast food on the body are related to the formation of excess free radicals. The high levels of calories, fat and sodium in most fast food can eventually lead to other health problems. For example, atherosclerosis, which can increase risk of conditions like heart attack and stroke. Fast food can also contribute to an increased risk of arthritis, some kinds of cancer, diabetes and liver disease. Many wrappers and packaging materials used to contain fast food are coated with perfluoroalkyls which are type of chemical that can repel both oil and water, preventing grease from the food from soaking through the packaging. However, these chemicals are toxic

to humans, and prolonged exposure can lead to increased risk of cancer, tumors, infertility and other health conditions [2,3].

### Worst effects of fast food

- **Obesity:** Obesity means having too much body fat. Fast food is high in calories and sugar that contribute to increased-weight gain. People who consume fast foods are less likely to eat fruits, vegetables which are sources of antioxidants. This change in eating habits can easily lead to obesity [4].
- **Heart Disease:** Fast foods create a much higher risk of heart disease because of the high level of saturated or trans fats found in much of the food. Those fats can clog the arteries and contribute to high cholesterol levels [5-7].
- **Type 2 Diabetes:** Fast food may develop type 2 diabetes, this type of diabetes is often caused by poor lifestyle choices, such as being overweight and not being physically active. There is a side effect to consuming frequent amounts of fast food 'obesity' which can lead to the development of diabetes [8].
- **Peptic ulcer:** PUD or peptic ulcer disease, is the most common ulcer of an area of the gastrointestinal tract that is usually acidic and thus extremely painful. Not only stress, spicy foods and alcohol caused most ulcers but also Fast Foods. Pizzas, Chips and Salted snakes are examples of fast foods which may causes Ulcer [9,10].

### Free radicals

The harmful effects of fast food on the body are related to the formation of excess free radicals which react easily with other molecules in the body because they consist of unpaired electrons. Free radicals can cause damage to cells in the body by reacting with molecules in cell membranes. Oxygen-based free radicals cause the most harm. However, these molecules come from a wide range of sources - from fried foods to air pollutants. Even the own metabolic processes create some free radicals [11,12].

### Antioxidants

Antioxidants is the key to prevent the damage of free radicals by neutralizing their effect to prevent them from harming the body. The term "antioxidants" applies to a whole range of substances, including some vitamins and minerals. The body produces antioxidants, but can also increase the amount in system through food. Antioxidants include vitamin C and the mineral selenium. Two of the most powerful antioxidants are the flavonoids and carotenoids. Antioxidants prevent free radical induced tissue damage by preventing the formation of radicals, scavenging them, or by their decomposition. Synthetic antioxidants are dangerous to human

health. Thus the search for effective, nontoxic natural compounds with antioxidative activity has been intensified in recent years. In addition to endogenous antioxidant defense systems, consumption of dietary and plant-derived antioxidants appears to be a suitable alternative. Dietary and other components of plants form a major source of antioxidants. There are several reports showing antioxidant potential of fruits due to their composition of vitamin C and Vitamin E and Beta-carotene which are examples of antioxidants. They must be supplied in the diet that the body cannot synthesized them. Using of balanced diet is the best way to provide the body with antioxidant nutrients [13-16].

Therefore, this study was undertaken with the objective of assessing the health knowledge about effects of excessive use of Fast foods and its relation to antioxidants by evaluating health knowledge about effects of fast foods and Antioxidants on human health among female students of University of Hail, then Comparing between Scientific students and Literature students. This report aims to review the available literature on the various effects of fast foods and Antioxidants on health. Also, the current study provides knowledge about the result of the excessive uses to help in framing strategies to reduce the impact on health by changing their food consumption patterns.

## Materials and Methods

### Design, sample and data collection

The study design was a cross-sectional survey and was conducted at the University of Hail in the female campus during first semester 2016 - 2017. A random sample size of 200 females was enrolled in the study (100 Scientific students and 100 Literature students). Self-reported questionnaires distributed to students for answering with the requisite instructions on how they fill and brief purpose about the study. The questionnaire was designed as shown in table 2 to study socioeconomic status, age followed by questions related to study objectives to evaluate knowledge about effect of fast foods and antioxidants on human health among a random sample of students of Hail University. Then, comparing degree of knowledge between Scientific and Literature students.

### Statistical analysis

Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS) software. Descriptive statistics such as means, standard deviations (SD) and ANOVA (one way analysis) were calculated [17,18]. Differences were considered statistically significant at  $P < 0.05$  or  $P < 0.01$ .

## Results and Discussion

Of 200 students participated in the study, 50% were students of scientific College and 50% were students of Literature College in age group 18 - 23 year. Detail of characteristics of participants shown in table 1.

Variables	Minimum	Maximum	Mean	Standard deviation
Weight (kg)	40	178	73.50	18.44
Height (cm)	120	195	160.29	8.13

**Table 1:** Characteristics of the participants.

Table 1 represent the characteristics of students participated in the current study. The mean weight was  $73.50 \pm 18.44$  kg and height was  $160.29 \pm 8.13$  cm.

Results from table 2 showed that there is a high significant difference between answer levels for all questions from question 1 to question 14. Results showed that; 96.2% of students now that Fast food are harmful; only 27.4% of students prefer fast food to healthy prepared food at home; 52.6% know benefits of antioxidants and only 21.2% of students know that antioxidants neutralize harmful effect of fast foods; 76.6% of students know that that vegetables and fruits are sources of antioxidants. This knowledge is consistent with literature reports that harmful effect of fast foods are related to free radicals which neutralized by antioxidants [19]. The results also concluded that pepsi is the product which most eating for 45.5% of students; 86.3% of students think that fast food is addictive; 88.5% of students know that vitamin C and E act as antioxidants. This knowledge is consistent with previous reports by Halliwell B [16] and Yomna., *et al* [19]. Results of the current study found that 70.9% of students know that students eat fast foods in 2 meals each week; 80.9% of students are ready to give up fast food, when they knew its harmful effects and 86.2% know that adolescents are more categories that eating junk food in abundance. This knowledge supported by a study conducted by Proglor Y [9].

Results from table 3 showed that there is a significant difference between answer levels for each question (Q3-Q14). In a comparison between Scientific and Literature students; students of Scientific College have higher level of knowledge than students of Literature College.

## Conclusion and Recommendation

Higher consumption of fast foods has been associated with the risk of many chronic diseases. It has been demonstrated that high energy density foods are less costly per calorie and are cheaper than healthy ones. The low energy density foods such as vegetables, fruits, whole grains, low-fat dairies are more expensive. This might be the reason for wide use of fast foods. When fast foods frequently replace nutritious foods in diet, excessive free radicals are formed. free radicals are dangerous to health. They can cause life threatening illness, and even death. Free radicals damage contributes to the etiology of many chronic health problems such as cardiovascular and inflammatory disease, cataract, and cancer. The availability of fast food restaurants everywhere can contribute to the high consumption of these unhealthy foods. An effective strategy to reduce fast food consumption might be making healthy foods more available. According to the American Heart Association (AHA), fast food can be good for the heart with a little planning. Requesting fruits and vegetables which are sources of antioxidants can improve the nutritional value of a fast food meal. In general, fruits and vegetables must be included in fast food restaurants menus. Two of the most powerful antioxidants are vitamins E and C. So, the key to counteract bad effect of fast foods is to find foods richest in those vitamins to add to diet. Finally, we concluded that the harmful effects of fast foods are related to the formation of excess amounts of free radicals. The best way to overcome the bad effect of fast foods through a balanced diet consisting fruits and vegetables which contain antioxidants per day. Antioxidants neutralize the effect of free radicals to prevent them from harming the body.

Published studies from Saudi Arabia exploring the awareness about benefits of Antioxidants and harmful effect of fast foods are rarely. In the current work, the study participants are aware about the benefits of Antioxidants and bad effects of free radicals but they have a moderate knowledge. While the comparison between students of Scientific College and students of Literature College showed that there is a significant difference between answer levels for all questions and students of Scientific College have higher level of knowledge than students of Literature College. This indicates the importance of informed and evidence based education programs and update their knowledge by conducting well-designed seminars, programs and workshops to correct their food habits.

Variables	Status	%	$\chi^2_{\text{t}}$ at $\alpha = 0.01$	$\chi^2_{\text{t}}$ at $\alpha = 0.05$	$\chi^2_{\text{t}}$
1-Monthly income	Less than 5000	36.7	9.21**	5.99*	12.36
	5000 - 10000	45.7			
	More than 10000	17.6			
2-Father's education	Uneducated	11.4	9.21**	5.99*	42.26
	Middle	50.9			
	Academic	37.7			
3-Are Fast food harmful?	Yes	96.2	6.63**	3.84*	85.38
	No	3.8			
4-Do you prefer fast food to healthy prepared food at home?	Yes	27.4	6.63**	3.84*	20.43
	No	72.6			
5-Do you know benefits of antioxidants?	Yes	52.6	6.63	3.84	0.27
	No	47.4			
6-Do you know that antioxidants neutralize harmful effect of fast foods?	Yes	21.2	6.63**	3.84*	33.18
	No	78.8			
7-What is the product which most eating?	Pepsi	45.5	11.34**	7.81*	30.47
	Cans	10.8			
	Potato chips	29.6			
	Crackers	14.1			
8-Do you know that vegetables and fruits are sources of antioxidants?	Yes	76.6	6.63**	3.84*	28.30
	No	23.4			
9-Do you think that fast food is addictive?	Yes	86.3	6.63**	3.84*	52.71
	No	13.7			
10-Do you know that vitamin C and E act as antioxidants?	Yes	88.5	6.63**	3.84*	59.29
	No	11.5			
11-Are you ready to give up fast food, if you knew its harmful effects?	Yes	80.9	6.63**	3.84*	38.19
	No	19.1			
12-Are adolescents more categories that eating junk food in abundance?	Yes	86.2	6.63**	3.84*	85.38
	No	3.8			
13-What is the percentage of your going to the restaurants which offer fast food?	Always	15.2	9.21**	5.99*	95.62
	Sometimes	79.1			
	Never	5.7			
14-How many meals of fast food do you eat each week?	2 meal	70.9	11.34**	7.81*	120.61
	2 meal or more	20.9			
	6 meals	7.1			
	9 meals	1.1			

**Table 2:** Participants Responses for socioeconomic and scientific knowledge questionnaire related to effect of Fast food and Antioxidants on health.

$\chi^2_{\text{t}}$  = Chi square tabulated and  $\chi^2_{\text{c}}$  = Chi square calculated.

Students	Q-3%	Q-4 %	Q-5%	Q-14%	(Q3:Q-14)%
Literature Scientific	40.0 b ± 49.5	64.0 b ± 48.5	42.0b ± 57.1	32.0b ± 47.1	35.5b ± 13.4
	82.0 a ± 38.8	100.0 a ± 0.0	82.0a ± 17.4	60.0a ± 49.5	75.3a ± 12.9
LSD at α0.05	17.65	13.61	15.3	19.18	5.216
LSD at α0.01	23.36	18.01	20.25	25.39	6.83

**Table 3:** Comparison between Scientific and Literature students in studied Questions as degree of knowledge about risk effect of fast foods in relation to antioxidants.

N.s = Non-significant The means followed by the same alphabetical letters were not significantly different at the probability level of 0.05 and 0.01.

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