JOURNAL OF SOCIAL AND HUMANITIES SCIENCES RESEARCH

Uluslararası Sosyal ve Beşeri Bilimler Araştırma Dergisi

Open Access Refereed e-Journal & Refereed & Indexed

ArticleType	ResearchArticle	***Accepted / Makale Kabul***	18.11.2019
Received / Makale Geliş	16.09.2019	***Published / Yayınlanma***	21.11.2019

THE EFFECTS OF ROYAL JELLY SUPPLEMENT ON SOME VITAMIN AND MINERAL VALUES IN NICOTINE ADDICTS[1]

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Doi Number: http://dx.doi.org/10.26450/jshsr.1548
Reference: Pancar, Z.,Taşdoğan, M. A.&Çınar, V. (2019).The Effects of Royal Jelly Supplement on Some Vitamin and Mineral Values in Nicotine Addicts. *Journal of Social and Humanities Sciences Research*,*6*(44), 3625-3629.

ABSTRACT

The aim of this study was to determine the effect of royal jelly on magnesium, calcium, sodium, potassium and chlorine levels in 1000 mg / day dose- smoking addicts with controlled experimental design. For this purpose, Fagerström Nicotine Dependence Scale was applied to smokers, a total of 20 adult male cigarette addicts (n = 10) with high addiction scores (6-7 points) were included in the study and the cigarette addict experimental group (n = 10) taking royal jelly supplementation. Criteria such as smoking and dependence of the individuals included in the study, not having any disease and not having allergies to honey derived foods were determined and groups were formed in this way. The experimental group was given liquid royal jelly (n = 10/1000 mg /day) supplemented in glass vials in the refrigerator at the same time every morning for three weeks. No application was made to the control group. In order to determine magnesium, calcium, sodium, potassium and chlorine levels in both groups, blood samples were analyzed one day before and one day after the study. SPSS 22.0 package program was used for statistical analysis of measured data of experimental and control groups. Paired Sample t-Test was used to compare the pre- and post-tests of the groups and Independent t-Test was used to compare the two groups. Statistical results were evaluated at p <0,05 significance level. In the analysis of the levels of magnesium, calcium, sodium, potassium and chlorine between the pre-test and post-test of the experimental group receiving royal jelly supplementation and the non-supplemented control group, no statistical significance was found (p> 0,05). In the intergroup analysis of the two groups, again no significant difference was found (p> 0,05). As a result of this study, it can be said that royal jelly supplementation at a dose of 1000 mg / day for 21 days does not affect magnesium, calcium, sodium, potassium and chlorine levels in cigarette addicts.
Keywords: Nicotine, royal jelly, vitamins

1. INTRODUCTION

Although smoking is known to be one of the main environmental factors that cause lung function deterioration; respiratory tract infections, genetic disorders and eating habits can also be considered among environmental factors (Romieu, 2005). It is emphasized that the increased risk of cardiovascular diseases, cancer and respiratory diseases due to smoking may be related to differences in lifestyle behaviors and eating habits in smokers (Yılmaz and Aykut, 2012). Nutritional habits of smoking

[1]This study was conducted between 12-14 September in Denizli II. Presented as a Oral Presentation at the International Symposium on Academic Studies in Education and Culture.

individuals compared to other individuals; some vitamin and mineral levels may change because it is different. Looking at the studies; The intake of vitamin C, folic acid, pulp, vitamin A, polyunsaturated fatty acids, iron, carotene and vitamin E was found to be lower and saturated fatty acid intake was higher in smokers than non-smokers (Jitnarin, Kosulwat, Boonpraderm, Haddock & Poston, 2008; Yılmaz & Aykut, 2012). When the consumption of food is examined, individuals who smoke are consuming more white bread, tea sugar, red meat, butter, whole milk, eggs than non-smokers; they consume less whole wheat bread, high pulp breakfast cereals, vegetables and fruits (Yılmaz & Aykut, 2012).

In the royal jelly produced in the hypopharyngeal and mandibular glands of worker bees for feeding the queen bees, water, protein, sugar, fatty acids, free amino acids, minerals iron and calcium and vitamins are a food rich in thiamine, niacin, riboflavin (Taniguchi et al., 2003). The content of royal jelly varies according to natural feeding of bees, season and age of larvae and production method. The water-soluble pH of 3-5 royal jelly contains proteins, lipids and carbohydrates. It is reported that royal jelly, which is widely consumed by humans, contains very low amounts of biologically active substances such as ptrein, neopterin, biopterin, xantopterin and hormones due to the thought that it provides vigor, vitality and contributes to cell renewal (Akyol, 2013; Rembold and Dietz, 1965). In many studies on royal jelly, it suppresses humoral immunity in rats, stimulates proliferation and antibody production of immune competent cells in mice (Sver, Orsolic, Tadic, Njarı, Valpotic et al. 1996), increases hemopoietic origin cell production (Okamoto et al. 2003), and decreases cholesterol level. effects (Taniguchi et al., 2003). In addition to these, in human studies; it has been emphasized that it has cell repairing and rejuvenating effects along with its therapeutic role in skin and hair diseases, regulatory effects of sexual functions (Akyol, 2013; Yatsunami and Echigo, 1985). In the studies, it was concluded that supplements, nutritional supplements, different training types and intensities may change and affect hematological and biochemical values (Çınar, Akbulut, Kılıç, Özdal & Sarıkaya, 2018; Çınar, Akbulut & Sarıkaya, 2017; Pancar, Özdal, Sarıkaya & Çınar, 2018; Pancar, Tahhan, Özdal & Vural, 2018; Polat, Polat, Akbulut, Çınar & Marangoz, 2017; Vural, Pancar & Özdal, 2018; Gencer, Coskun, Sarıkaya & Kaplan, 2018). In this study; it is a research subject that royal jelly, which is a rich and natural food source, will affect the magnesium, calcium, sodium, potassium and chlorine levels of cigarette addicts.

2. INDIVIDUALS AND METHOD

2.1. Subjects

The study protocol was explained to all participants prior to the study and voluntary participation certificate was obtained from the participants. A total of 20 healthy sedentary smokers aged 20-25 years participated voluntarily.

2.2. Experimental Design

This is an experimental design study. A total of 20 men were randomly divided into two groups. For this purpose, the Fagerström Nicotine Addiction Scale was administered to smokers and those with advanced addiction scores (6-7 points) were identified. A total of 20 adult males; smoking addict control group (n = 10) and royal jelly supplement (n = 10) were included in the study. Criteria such as smoking and dependence of the individuals included in the study, not having any disease, and no allergies to honey-derived foods were determined. The supplementation group was given liquid royal jelly (n = 10/1000 mg / day), which was kept refrigerated in glass vials at the same time every morning for three weeks. The control group was not given any reinforcement.

2.3. Blood Test Procedure

5 ml of venous blood samples were collected from the right arm in yellow cap tubes between 09:00-10:30 in the morning in Gaziantep University biochemistry laboratory before and after 1 day of royal jelly supplementation. Blood samples were centrifuged in Nüve-NF800 apparatus at 4000 rpm for a total of 7 minutes and their sera were separated. Spectrophotometric method was used to determine serum levels in both groups; magnesium, calcium, sodium, potassium and chlorine levels were analyzed.

2.4. Statistical Analysis

SPSS 22.0 package program was used for statistical analysis of the measured data of the experimental and control groups. Paired Sample t-Test was used for the comparison of the pre and post tests of the

groups and Independent t-Test was used for the comparison of the two groups. Statistical results were evaluated at p <0.05 significance level.

3. RESULTS

The data of the researches are presented in the table as mean and standard deviation. Although the levels of short-term royal jelly supplementation were increased, it was not statistically significant (p> 0,05).

Table 1. Analysis of Pre and Post Test Values of Supplement Group

		Mean	SD.	t	p
Magnesium	Pre test	2,133	,1032	-1,000	,363
	Post test	2,166	,1505		
Calcium	Pre test	9,833	,5921	,907	,406
	Post test	10,00	,4690		
Potassium	Pre test	4,500	,2966	,830	,444
	Post test	4,633	,3141		
Sodium	Pre test	143,8	1,602	-1,808	,130
	Post test	145,6	2,250		
Chlorine	Pre test	98,50	1,870	-1,513	,191
	Post test	100,0	2,190		
Phosphor	Pre test	3,550	,5394	-,199	,850
	Post test	3,616	,4833		

Table 2. Pre-and Post-test Analysis of the Control Group

		Mean	SD.	t	p
Magnesium	Pre test	2,216	,0983	2,390	,062
	Post test	2,083	,1472		
Calcium	Pre test	10,10	,3286	1,657	,158
	Post test	9,766	,4718		
Potassium	Pre test	4,533	,3932	-0,415	,695
	Post test	4,666	,5085		
Sodium	Pre test	143,3	2,338	-1,865	,121
	Post test	146,0	1,673		
Chlorine	Pre test	100,0	1,673	-1,814	,129
	Post test	101,6	,8165		
Phosphor	Pre test	3,900	,4381	-3,371	,020
	Post test	3,232	,5680		

Table 3. Analysis of Pre and Post Test Values of Groups

		Mean	SD.	t	p
Magnesium	Control	-,1333	,1366	-2,565	0,028
	Experiment	,0333	,0816		
Calcium	Control	-,3333	,4926	-0,612	0,554
	Experiment	-,1667	,4501		
Potassium	Control	,1333	,7865	0,743	0,475
	Experiment	-,1333	,3932		
Sodium	Control	2,666	3,502	0,475	0,645
	Experiment	1,833	2,483		
Chlorine	Control	1,666	2,250	0,123	0,904
	Experiment	1,500	2,428		
Phosphor	Control	,6667	,4844	1,545	0,153
	Experiment	,0667	,8189		

4. CONCLUSION

Serum magnesium, calcium, sodium, potassium and chlorine levels of royal jelly supplement were given to cigarette addicts. In the findings of the study, magnesium, calcium, sodium, potassium and chlorine

values were increased in favor of the post-test but this increase was not statistically significant. Vitamins are regulators and resistance enhancers which are found in natural nutrient sources, which help cell regeneration and energy production, which the body needs in certain amounts on a daily basis and which should be taken as an external supplement when not enough. However, many of the vitamins cannot be produced in the human body. Therefore, if the amount required for health cannot be obtained through natural food sources, they should be taken additionally. The content of royal jelly varies according to natural feeding of bees, season and age of larvae and production method. The water-soluble pH of 3-5 royal jelly contains proteins, lipids and carbohydrates. Vigor, vitality, because of the thought that contributes to cell renewal; royal jelly, which is widely consumed by humans, has been reported to contain very low amounts of biologically active substances such as ptrein, neopterin, biopterin, xantopterin and hormones (Rembold and Dietz, 1965). Smokers are also affected by smoking free radicals as well as inadequate diets. Micronutrients (mainly vitamin A, especially carotenes, vitamin C, vitamin E, folic acid, phenolic compounds), which are mostly found in vegetables and fruits, are protective against lipid peroxidation caused by toxic substances in cigarettes (Aliyev, Yalcın, Kayaaltı, Saygı & Söylemezoğlu, 2009; Dyer et al, 2003). However, smokers are more susceptible to oxidative damage caused by free radicals because they consume less fruits and vegetables. Weight and body mass index (BMI) of smokers were lower than non-smokers. While food consumption decreases due to smoking, energy expenditure increases, resulting in weight loss (Jitnarin et al., 2008; Yılmaz & Aykut, 2012). Royal jelly is mostly used in the treatment of diseases such as bronchial asthma, arteriosclerosis, stomach and intestinal diseases, rheumatism. In addition, it has been stated that it has high blood pressure prevention and kidney and urinary tract disorders. Royal jelly as well as mental and physical fatigue, as well as the aging of the skin and against the deterioration of the skin is used effectively against stress (Anonymous, 1992). It is stated that royal jelly lowers blood cholesterol, total lipid, phospholipid, triglyceride, b-lipoprotein levels, has blood pressure lowering and vasodilatory activity, and has insulin-like peptides, hypoglycemic (lowering blood sugar) and immunological effects. In addition to these therapeutic role in skin and hair diseases, sexual functions, as well as regulatory effects, cell repair and rejuvenating effects have been emphasized (Meydanoğlu, 1985; Yatsunami and Echigo, 1985). As a result, we can say that royal jelly supplement given to cigarette addicts changes the vitamin and mineral values and provides nutritional support in this sense.

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