

The Balkan Diet (Balkan Antioxidative Healthy Nutrition) in the Treatment and Prevention of Metabolic Syndrome: Importance of Nutritional Traditions

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Abstract

Our studies have shown that the traditional Balkan cuisine from the end of the 19th and the first half of the 20th century is very similar to the Mediterranean diet and is part of so called Balkan healthy food, respectively Balkan diet. The typical nutrition in the Balkan region has its roots centuries ago. It has positive properties and all of the elements of the healthy nutrition. The Balkan diet with its rich content of healthy food ingredients is a basis for prevention and treatment diet of obesity.

Keywords: *Balkan Diet; Metabolic Syndrome; Mediterranean Diet*

Many studies during the second half of the 20th century have shown that the people living around the Mediterranean suffer much less from cardiovascular diseases. The mortality in this region is relatively lower and the people have marked vitality and long life compared to the people living in the Northern Europe. Similar biological and epidemiological studies confirmed the speculation that the nutritional traditions in the Mediterranean are the basis of the long life.

Does the Mediterranean diet have an alternative in the Balkans?



Figure 1: The Balkan Region.

The traditional nutrition in the Balkan countries is responding to many of the major aspects of healthy food. Our recent studies show that the traditional Balkan cooking from the end of the 19th and the first half of the 20th century is much similar to the Mediterranean diet. The traditional Balkan nutrition is rich on antioxidants (F Ribarova, *et al*, Dieta 6, 2001, 21). The Balkan healthy food contains the

highly active antioxidants resveratrol and pycnogenol. The diet is rich of alpha- tocopherol, ascorbic acid, beta- carotene, selenium, bio- flavonoids, and many other biologically- active substances. It is considered that the Balkan diet has cooperative action to the PPRSs. Some typical examples of the Balkan healthy nutrition are Yoghurt and Cheese, Bee Products, Multigrain Products, Typical Fruits and Vegetables.

The yoghurt - In the end of the 19th century Mechnikov mentioned that the basis of the long-life of the Balkan highlanders is the consumption of Balkan yoghurt. During 1905 Stamen Grigorov, MD, discovered the “Bulgarian bacterium” *Lactobacterium bulgaricum*. In 1905 Radush Titkov, MD, defend a thesis in Toulouse concerning the healthy features of the yoghurt. Professor Asen Zlatarov in 1933 said: “The yoghurt is an elixir of long-life”.

Acad Tasho Tashev and his disciples developed preventive dietary regimen on the basis of yoghurt (1960-1985). The role of yoghurt, respectively probiotics in the treatment and prevention of obesity and metabolic syndrome has been discussed. We studied the curative effect of the yoghurt in a total of 57 subjects with central type obesity (21 men and 36 women) and metabolic syndrome. Baseline mean subject characteristics were: age-46.2 year old, body mass index (BMI) – 35.4, fat mass – 39.4%, visceral fat – 14.1, waist circumference – 109 cm, hip circumference – 120.2 cm and sagittal diameter – 27cm. All obese patients underwent a dietary regimen, included 290g yoghurt fermented by *Bifidus essensis* for diner for a 6-month period. The product consisted of proteins – 4.3g, carbohydrates (lactose) – 3.9g, fat – 0.5 g, and 67 kilocalories per 100g yoghurt product. At the beginning and at the end of the study several anthropometric parameters have been measured by bioimpedance device (Tanita 420). The study demonstrated decrease of BMI with 9.8% of fat mass with 9.6% of fat mass with 9.6% of visceral fat with 14% as well as a decrease of waist circumference – 11.9% hip circumference – 5.8% and sagittal diameter – 10.3%.

Probiotics are substance that regulate the normal intestinal flora, influence metabolism and have an effect on various diseases. Our studies were performed on the effect of *Lactobacillus bulgaricus* and *Bifidus Essensis* carbohydrate and lipid metabolism in obesity. The results indicated that the probiotics improved the impaired glucose and lipid metabolism. The probiotics affected the concentration of free radicals in the blood. Taken together, the results give reason to assume role of the effect of probiotics on oxidative stress in the mechanism of influence on the metabolism.

The bee products - They are milestone for the healthy Balkan nutrition. Our studies stress on the important role of the apidietetics (nutritional regimen, enriched with propolis, honey, royal jelly, bee powder, laclarville, etc.) in the prevention on treatment of the atherogenic risk factors [1-3].

Dietary menus, enriched with pectin, fibers, propolis, fruit and vegetable juices reduce the coronary risk and ameliorate the metabolic parameters among shift and night transport workers. On the base of our studies we created a series of dietary products for prevention and treatment of obesity and metabolic syndrome – Biocorect +, containing a mixture of propolis, multi-flavored honey, bee pollen, various herbs, and bioactive substances. Our hypothesis is that the bee product in Biocorect + has an effect on the stomach mucosa, respectively on the secretion of the stomach hormone ghrelin. Thus, there is a positive effect on the metabolic pathways. In Bulgaria, there is quite a high number of organically certified apiaries. For optimal quality and activity Biocorect+ should be produced on the basis of organic bee products.

The food supplements mentioned above have been tested among 302 individuals diagnosed with obesity (171 – females and 131 – males). The mean age was 46.3 years and mean body mass index (BMI) 32.8 kg/M². After allergy examination, the food /Biocorect universal/ was prescribed as follows: 5 days – 3x40 drops 15 minutes before eating; 2 days- 2x60 drops /at 10a.m. and at 4p.m. in a cup of tea/. Our results show improvement of the parameters of metabolism and the cardiovascular system after the application of food supplement consisting of propolis and other bee products (Table1 and Table 2).

Parameter	BMI	FM	LBM	LBM/FM	VBM	W	H	W/H	SD
Before Treatment	35.4	39.4	60.6	1.53	14.1	109	120.2	0.91	27
After Treatment	31.9	35.2	64.8	1.84	12	96	113.2	0.85	24.2

BMI: Body Mass Index; FM: Fat Mass; LBM: Lean Body Mass; VBM: Visceral Body Mass; W: Waist; H: Hips; SD: Sagittal Diameter

	Total Cholesterol	LDL	Triglycerides	SBP	DBP
Before Treatment	6.72	4.42	2.34	160	95
After Treatment	*5.52	*3.26	*1.72	*145	*85

Table 2: Lipid status and blood pressure was also ameliorated for this period, * $p < 0.05$.

Other characteristic qualities of the Balkan diet:

- Multigrain products - High fiber content (bread rich of fiber) - Low glycemic index - Prevention of metabolic syndrome.
- Vegetables - Flavonoids and Carotenoids. Nettle (unique for the Balkans), Peppers, Tomatoes, Onion (white, green, red), Garlic. Carrots are rich source of flavonoids and carotenoids. Nettle and dock are Unique for the Balkans and a rich source of antioxidants.
- Legumes have low glycemic index, are rich of proteins. They are typical for the Balkan healthy diet. Their cooking over low heat helps to keep all their nutrients.
- Onions - Participation of onions in almost all salads and dishes provides the body with a sufficient amount of flavonols typical representatives - quercetin and kaempferol.
- Peppers - Peppers contain flavonols and flavone (luteolin and apigenin).
- The catechins - The Balkan cuisine is rich of catechins- the third class of the flavonoid family. The catechins are available in the grapes, apples, plums and wine.
- Red wine with violet colored fruits (grapes and blueberries) is a source of powerful antioxidants – anthocyanins, picnogenol and resveratrol. Our study suggests that resveratrol could improve specific metabolic parameters in individuals at risk for type 2 diabetes as well as in obese subjects with impaired glucose tolerance.
- Coffee is the largest source of antioxidants. According to the American Journal of Clinical Nutrition (AJCN) coffee is the sixth among the top 50 antioxidant-containing foods. The article shows data on the beneficial antioxidant effects of coffee in the prevention of cardio-vascular diseases as well as colorectal and hepatocellular cancer, and liver cirrhosis. Furthermore, coffee is protective in models of experimental carcinogenesis and is associated with reduced incidence gallstone, Alzheimer’s and Parkinson’s diseases, and type 2 diabetes in epidemiological studies.

Traditional Balkan diet plays an important role in the prevention of Coronary Cardiovascular diseases [4,5]. It is rich in Antioxidants (F Ribarova, *et al*, Dieta 6, 2001, 21): The positive effect of the Balkan healthy nutrition is associated with the high concentration of Alpha tocopherol, Ascorbic acid, Beta carotene, Selenium, Bioflavanoids in the food.

Our studies have shown that the traditional Balkan cuisine from the end of the 19th and the first half of the 20th century is very similar to the Mediterranean diet and is part of so called Balkan healthy food, respectively Balkan diet. The typical nutrition in the Balkan region has its roots centuries ago. It has positive properties and all of the elements of the healthy nutrition. The Balkan diet with its rich content of healthy food ingredients is a basis for prevention and treatment diet of obesity [6-11].

Conclusions

Our studies have shown that the traditional Balkan cuisine from the end of the 19th and the first half of the 20th century is very similar to the Mediterranean diet and presents the so called Balkan Healthy Food (resp. Balkan diet). The typical nutrition in the Balkan region

has its roots from centuries ago. It has the positive properties and all of the elements of the healthy nutrition. With its rich content of healthy food ingredients, the Balkan diet is a circumstance for developing of various preventive and curative diet regimen.

Bibliography

1. Sv Handjiev. "The Balkan Diet in the prevention and treatment of metabolic syndrome". *Second Balkan Congress on Obesity, Albena* (2006): 32-35.
2. Sv Handjiev. "Childhood obesity and nutrition in the children age in Bulgaria". *EANS, Milano* (2017).
3. T. Handjieva-Darlenska., *et al.* "Nutrition et Santé". Simel Press (2016): 52-53.
4. V Simovska. "Integration of obesity treatment and prevention into other chronic diseases prevention efforts". *Second Balkan Congress on Obesity, Albena* (2006): 52-53.
5. L Georgieva., *et al.* "The Balkan Diet – Alimentary factor for prevention against obesity and its complications". *Second Balkan Congress on Obesity, Albena* (2006): 101.
6. Cristiana Glavce., *et al.* "Mondialisation du comportement alimentaire et l'obesite". In *Mondialisation des comportements alimentaires et facteurs de risques pour l'obesite et le diabète*. Simel Press (2012): 42-52.
7. JM Borys., *et al.* "EPODE for the Promotion of Health Equity". *Lavoisier* (2015): 11-195.
8. Nicoleta Milici. Comportements alimentaires désordonnés in vol. "Mondialisation des comportements alimentaires et facteurs de risques pour l'obésité et le diabète". *Simel Press* (2016): 36-49.
9. Th Von Sanchsen. "The Balkan diet – Western Medicine Point of View". *Second Balkan Congress on Obesity, Albena* (2006): 70.
10. V Yumuk., *et al.* "Obesity Management Task Force of the European Association for the Study of Obesity". *European Guidelines for Obesity Management in Adults*. *Obesity Facts* 8.6 (2015): 402-424.
11. World Health Organization. Global Health Observatory data repository. Obesity.

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