

## PRVIH 50 SPORTISTA U CENTRU ZA SPORTSKU ISHRANU I SUPLEMENTACIJU UMSS – ŠTA SMO NAUČILI?

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Početak ove godine Antidoping agencija Republike Srbije i Udruženje za medicinu sporta Srbije su osnovali Centar za sportsku ishranu i suplementaciju. Ideja je nastala 2010.godine nakon prevođenja knjige Luiz Burk "Praktična sportska ishrana" kada su članovi centra rešili da odgovore na praktične izazove vezane za pomenute teme. Stručni tim centra od sedam članova čine: nutricionista, magistar i doktor farmacije i bromatologije, lekar, internista, doktor medicinske biohemije i vrhunski sportista.

Specifičnost centra je u tome što se svakom sportisti pristupa pojedinačno, a ne samo na osnovu opštih preporuka vezanih za već formiran profil sportiste. Razvijanje strategije u ishrani kako bi se podržala fizička sposobnost zahteva specifično poznavanje igre, potrebe igrača, kao i saznanje da npr. sportisti često menjaju boravišta između utakmica.

Program ishrane i suplementacije obuhvata: biohemijske analize krvi, internististički pregled, inicijalni razgovor sa sportistom vezan za navike u ishrani i suplementaciji, kao i njegove trenutne želje, davanje instrukcija za vođenje trodnevnog dnevnika ishrane, nošenje akcelerometra, analizu dnevnika, formiranje nutritivnog profila sportiste, pravljenje plana ishrane tj.dijete i programa suplementacije, detaljan razgovor sa sportistom prilikom predaje izveštaja, kao i intenzivne konsultacije sa članovima centra i kontrolna merenja i preglede u narednom periodu.

Pedeset sportista je za šest meseci uključeno u program centra i među njima se nalaze prvotimci KK "FMP"(13), FK "Partizan"(11), reprezentativci u džudou (3), boksu (5) i rvanju (6), vrhunski atletičari (3), fudbaleri (5) i po jedan predstavnik iz skijanja, paraolimpijskog sporta i američkog fudbala. Biohemijske analize su kod većine sportista bile u granicama normale dok je 5-oro sportista imalo vrednosti gvožđa i feritina u krvi koji su zahtevali terapiju preparatima gvožđa. Internistički pregled nije ukazao na značajne zdravstvene probleme, ali je troje sportista u trenutku dolaska u centar imalo sportsku povredu koja je zahtevala dijagnostiku i fizikalnu terapiju. Inicijalni razgovor sa sportistima je pokazao da su retki pojedinci prethodno poštovali dijetu ili suplementaciju koju su dobili od stručnjaka, već je većina njih svojevremeno birala ishranu i preparate koje su koristili neredovno i bez preporučenih doza. Razlog dolaska u centar tj.cilj sportista je prevashodno bio smanjenje (60%) ili povećanje (20%) telesne težine, Trodnevni dnevnik ishrane je analiziran pomoću COSMED FMed 2.0 softvera i analiza je prikazana u tabelama 1 i 2. Na osnovu analize dnevnika - deficita i suficita makro i mikronutritijenata i na osnovu želja sportista i svih aspekta sporta kojim se oni bave – pravljen je individualni program ishrane i program suplementacije. Dijete su zadovoljile sve RDA vitamina i minerala, kao i osnovne procenat zastupljenosti ugljenih hidrata, proteina i masti. Date su opcije za svaki od pet obroka koji su obavezni, kao i preporuke šta treba uzimati pre, u toku i posle treninga. Akcenat je naravno bio i na kompletnoj hidrataciji. Svaki sportista je dobio spisak suplemenata za koje postoje jasni naučni dokazi da utiču na sportsku sposobnost kada se upotrebljavaju po određenom protokolu i u specifičnoj sportskoj situaciji: vitamin C, whey protein, kreatin alkalini, multivitamini i multiminerali, glutamin, kofein, kompleks Ca+Mg+Zn, omega 3 masne kiseline, Fe i preparate za dobijanje na telesnoj težini.

Prilikom predaje izveštaja stručnjaci centra su obavljali detaljan razgovor kako bi objasnili smisao svake preporuke koja se daje i tada se najbolje pokazao stepen needukovanosti sportista o ishrani, suplementaciji i dopingu jer su po prvi put dobijali informacije toga tipa, iako većina njih ima sportske karijere duže od deset godina. Sportisti su posle uključenja u program ostali pod konstantnim nadzorom stručnjaka iz centra kako bi se pratili postignuti efekti. Shodno dosadašnjem iskustvu, da bi se primetili rezultati programa bilo je potrebno je oko četiri nedelje.

Timski program je po prvi put sproveden kod prvog tima FK "Partizan" gde je ishrana detaljno isplanirana uz saradnju sa klupskim restoranom a suplementacija na osnovu preparata koji su pokazali ergogene efekte upravo kod fudbalera. Sprovedene su edukacija i konsultacije sa stručnim štabom i igračima tima kako bi im se detaljno objasnio program dat u centru.

Nutrijent	RDA	Dnevni unos sportista centra	%RDA
Vit.B6 (mg)	1.3	0.8	67.5
Vlakna (g)	25	12.7	50.59
Vit.B12 (mg)	2.4	2.7	113.3
Ca (mg)	1300	1177.3	90.0
K (mg)	4700	3678.3	72.2
Mg (mg)	410	439.7	107.1
Holesterol (mg)	300	433.3	144.3
Fe (mg)	11	15.2	134.5
P (mg)	1250	1814.1	145.2
Zasićene masne kiseline (mg)	20	30.1	153.6
Vit. C (mg)	75	144.3	192.2
Na (mg)	1500	4337.4	289.1

Tabela 1 i 2 –  
Prikaz osnovnih antropometrijskih vrednosti i vrednosti makro i mikronutrijenata u EU sportista

Parametar	Prosečne vrednosti (Σ)
Godine	20.4
Visina (cm)	184
Težina (kg)	84.5
BMI	24.3
F%	13.3
Energetski unos – EU (kcal)	3500
Ugljeni hidrati (%EU)	53
Masti (%EU)	30
Protein (%EU)	17
Tečnost (ml)	2863

Najznačajniji rezultati su postignuti kod sportista koji su strogo pratili program koji su dobili u centru. Tako je kod sportista sa težinskom kategorijom (boks i rvanje) smanjenje telesne težine i

očuvanje mišićne mase postignuto isključivo uz poštovanje dijete i pravilne suplementacije. Ovi sportisti po prvi put nisu bili u psihičkom i fizičkom stresu pred kontrolna merenja na takmičenjima, niti u iskušenju da pribegnu korišćenju doping supstanci kao što su npr. diuretici. Fudbaleri i košarkaši su uspeli da procenat telesnih masti smanje i dovedu u optimalne granice za njihov profil aktivnosti i da sačuvaju mišićnu masu, snagu i efikasnost na utakmicama. Džudisti koji su prelazili iz manje u veću težinsku kategoriju su to uspešno izveli zahvaljujući dijeti i suplementaciji, pri čemu treba istaći da im se procenat telesnih masti održao ili smanjio iako su svoju težinu povećali i za više od 5 kg. Subjektivni osećaj sportista koji su izjavili da tokom programa nisu imali utisak da psiho-fizički trpe već zadovoljno ostvaruju svoje ciljeve, je od izuzetnog značaja za dugotrajno praćenje i poštovanje programa Centra za sportsku ishranu i suplementaciju.

## THE FIRST 50 ATHLETES IN THE CENTER FOR SPORTS NUTRITION AND SUPPLEMENTATION SMAS - WHAT HAVE WE LEARNED?

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Earlier this year, the Anti-Doping Agency of Serbia and the Sports Medicine Association of Serbia was founded the Center for sports nutrition and supplementation. The idea was born in 2010 after translation of Louise Burk book "Practical Sports Nutrition" when members of the center decided to respond to practical challenges related to these topics. The expert team of the center consists of seven members: a nutritionist, master and doctor of pharmacy and bromatology, a doctor, an internist, a doctor of medical biochemistry and a top athlete. The specificity of the center is that every athlete has individual approach and not only the general recommendations related to the already established profile athletes. Developing strategies in the diet in order to support the physical ability requires specific knowledge of the game, a player needs as well as knowledge that athletes often change residence between matches. The program includes: biochemical analysis of blood, internist examination, initial interview with the athlete linked to eating habits and supplementation as well as his current wishes, giving instructions to conduct a three-day diet record, wearing the accelerometer, record analysis, the formation of the nutritional profile of athletes, create a plan of diet and supplementation, detailed interview with the athlete when submitting the report, as well as extensive consultations with members of the center and control measurements and examinations in the future. Fifty athletes in six months included in the program center and among them are first team players of basketball club FMP (13), FC "Partizan" (11), the judo team (3), boxing (5) and wrestling (6), top athletes (3), football (5) and one representative from skiing, paralympics sports and football. Biochemical analysis in most of the athletes was within normal limits while the 5 athletes had a serum iron and ferritin in the blood that needs the treatment with iron preparations. Internist review has pointed no significant health problems, but the three athletes at the time of arrival at the center had a sports injury that required physical therapy and diagnostics. The initial discussion with the athletes showed that they were rare respected diet or supplementation they

received from the experts, but most of their one choice of food and supplements that were used irregularly and without the recommended dose. The reason for coming to the center of the athletes was primarily decrease (60%) or increase (20%) of body weight. Three-day diet diary was analyzed using the Cosmed FMed 2.0 software and the analysis is shown in tables 1 and 2. Based on analysis of the record - deficits and sufficit of macro and micronutrients and based on the desire of athletes and all aspects of sport that they do – we made a individual nutrition and supplementation program. The diet respected all the RDA of vitamins and minerals, as well as the basic representation of the percentages of carbohydrates, proteins and fats. Options for each of the five meals were represented, as well as recommendations on what should be taken before, during and after training. The focus was also on the complete hydration. Each athlete was given a list of supplements for which there is clear scientific evidence to influence athletic ability when used by a particular and specific sports protokol situation: vitamin C, whey protein, creatine alkaline, multi minerals, multi vitamins, glutamine, caffeine, complex Ca + Mg + zinc, omega 3 fatty acids, Fe and supplements for getting the weight.

When presenting the report, experts from center performed a detailed interview to explain the meaning of each recommendation that is given and then they saw the degree of acknowledge about nutrition, doping and supplementation because for the first time received information of this type, although most of them have a career in sport for more than ten years. Athletes, after joining the program remained under constant supervision of experts from the center to monitor the effects that were achieved. According to past experience, time for noticeable results of the program was about four weeks.

Team program was first implemented in the first team of FC "Partizan", where the diet is carefully planned in cooperation with club restaurant and supplementation was based on products that have shown ergogenic effects. Center carried out training and consultancy with headquarters of team and with players in order to explain the program in detail given in the center.

Nutrient	RDA	Daily intake of athletes in center	%RDA
Vit.B6 (mg)	1.3	0.8	67.5
Fiber (g)	25	12.7	50.59
Vit.B12 (mg)	2.4	2.7	113.3
Ca (mg)	1300	1177.3	90.0
K (mg)	4700	3678.3	72.2
Mg (mg)	410	439.7	107.1
Cholesterol(mg)	300	433.3	144.3

Parameter	Mean values (Σ)
Years	20.4
Height (cm)	184
Weight (kg)	84.5
BMI	24.3
F%	13.3
Energy intake – EI (kcal)	3500
Carbohydrate (%EI)	53
Fat (%EU)	30
Protein (%EU)	17
Fluid intake (ml)	2863

Fe (mg)	11	15.2	134.5
P (mg)	1250	1814.1	145.2
Saturated fatty acid (mg)	20	30.1	153.6
Vit.C (mg)	75	144.3	192.2
Na (mg)	1500	4337.4	289.1

The most significant results were achieved with athletes who strictly followed the program from center. Thus, in athletes with weight categories (boxing and wrestling) weight loss and maintaining muscle mass were achieved only with proper respect of diet and supplementation. These athletes for the first time were not in the mental and physical stress before the control measurements at competitions, and were not tempted to use doping substances such as diuretics. Football players and basketball players were able to reduce the percentage of body fat and lead to optimal bounds for their profile of activities and to preserve muscle mass, strength and efficiency on the matches. Judo players who crossed to high weight class are successfully performed through diet and supplementation, whereas it should be noted that their percentage of body fat maintains and even reduce, although the weight increase more than 5 kg.

Athletes from program, who reported that they did not have the impression of physical and psychological suffering, but happily achieve their goals, are crucial for long-term monitoring and compliance of program in Center for the sports nutrition and supplementation.