

**THE USE OF DIETARY SUPPLEMENTS BY CROATIAN FEMALE BASKETBALL PLAYERS****Gordana Ivković***Centre for Exercise and Sports, University of Zadar, Croatia**Original scientific paper***Abstract**

*The aim of this study was to determine how and where the food supplements are used by female basketball players in Croatia and their relationship to knowledge about nutrition and their eating habits. Although there is growing interest in diet and use of dietary supplements some female athletes still consume diets lower than optimal. The cause of this phenomenon are both in the selection of foodstuffs and in habits. In order to avoid injuries and health complications, it is necessary to possess extensive knowledge about the different types of nutrients, about quantity and daily schedule of meals, about eating habits, as well as about the need for the use of nutritional supplements. Due to the potential side effects and the imbalance of nutrients, recommendations for the use of food supplements should be taken only by a physician.*

**Key words:** *nutritional supplements, women basketball players, nutritional knowledge and habits, Croatia*

**Introduction**

Female basketball players to meet their energy needs and to ensure an adequate supply of nutrients to build body, should ensure adequate nutrition as an important factor in the training process. Proper diet except that it has a very important role in reducing and delaying fatigue, as female athletes may be given advantage over rivals, but also reduces the chance of injury. Many injuries occur in the last minutes of the game when the basketball players become physically and mentally tired (Ketterly, 2006). Female basketball players train at least six days a week, some up to 3 times a day. Training includes individual training, group training and team training when players usually work on specific skill development and technical aspects of the basketball game. Also there is a fitness training and strength training, working out at the gym. Trainings usually last between 1 and 2 hours and include a high-intensity exercise with variable recovery. In order to avoid injuries and health complications, female basketball players should be educated on the types of nutrients, quantity and daily schedule of meals (Lacey and Pritchett, 2003). Although there is growing interest in diet and use of dietary supplements some female athletes still consume diets lower than optimal. This often happens during the pre season before the competition in order to improve the structure and body weight. Athletes often believe that taking nutritional supplements will improve the health and sports performance (Scofield D. 2006). Vitamin and mineral supplements are not necessary if they are consumed from foods that contain them in sufficient quantities. However, athletes who restrict energy intake, using rigorous diets, eliminating one or more food groups from the diet, or consume unbalanced diet, can use plug-ins. Nutritional supplements should be a complement to regular diet and directed by a doctor, although some studies have called into question the quality of

support and safety of use (Burke, L. 2006). Using nutritional supplements without professional control and taking large doses can be dangerous. Food supplements or ergogenic aids will never replace genetic predisposition, good training and optimal nutrition. Đikić D, and colleagues in 2008 at the European Championships in basketball investigating how much and what kind of supplements and medications the basketball players are taking in. The survey showed that basketball players usually use multivitamins, energy drinks and carbohydrates. A high intake of supplements and drugs by international basketball players, especially non-steroidal anti-inflammatory drugs, imposes the need for education and controlled use of these drugs. Due to the potential side effects, recommendations for the use of food supplements should be taken only by a physician .

**Problem and aim**

The aim of the study was to determine how many and which supplements are used by basketball players in Croatia, as well as upon whose recommendation are consumed, and to explore the relationship between knowledge about nutrition and eating habits.

*Sample of entities*

The sample consisted of 236 female basketball players, 143 from the Croatian and 83 female basketball players participating in international student basketball tournament. The female basketball players were in the average age of 20.33 with an average height of 176.82 cm, average weight of 68.23 kg and the average body mass index of 21.94. Before the survey respondents were informed about the purpose of research and techniques of questionnaire, and after their consent they completing the survey, which was anonymous. The poll was written in English and Croatian language.

**Methods**

The data were processed at the University of Zadar using Statistica package for Windows ver. 7.1. For all of the particles of the questionnaire were calculated frequencies and percentages. Differences between individual groups of subjects were determined using t-test and analysis of variance. All coefficients are tested at a significance level of  $p < 0.05$ .

**Results and discussion**

As a source of recommendation for the use of supplements, Croatian female basketball players listed parents or to the personal discretion of 53.73%, while foreign basketball players most commonly used dietary supplements recommended by coaches or fitness trainers 64.29%. Although it is widely accepted that athletes in large quantities using dietary supplements (Bishop et al. 2010 ..), this study showed that 53% of female basketball players do not use supplements. Of those who use supplements 48.4% take vitamins, 36.04% minerals and other dietary supplements in a smaller share of 20%.

Croatian female basketball players used vitamins in a higher percentage than foreign female basketball players and foreign female basketball players drink more mineral water than Croatian female basketball player. Table 2 shows the lack of knowledge about nutrition. The level of knowledge of women basketball players is at 64.06%.

For questions about the frequency of consumption of food and beverages, out of a maximum 45 points, 60.17%, a basketball player, on average, had 31.29 points, which shows that most basketball players shows the average eating habits.

Similar indicators make some other research. Larger deficits of knowledge of nutrition at the Turkish female basketball players noted in his research Süel E. et al (2009), as well as Jessri M. et al (2010) at the Iranian female basketball player. Poor eating habits can undermine health and athletic performance.

Thus, as observed in female athletes impaired immunological phenomena and related problems (Gleeson, M. et al. 2004) and disorders of menstrual function and risk of osteoporosis, and disorders of nutrition and anaemia. Using analysis of variance showed that knowledge about nutrition at a female basketball player does not affect the foreign nor the Croatian female basketball player in the consumption of dietary supplements (Table 3), but they differ in their eating habits. Table 4 presents shefe test that shows that foreign female basketball players have better eating habits and also taking more supplements of Croatian female basketball player (Figure 1). Foreign female basketball players, as commonly referred to, take supplements as recommended by coaches and fitness trainers.

Table 1. Use of nutritional supplements and nutrition knowledge and dietary habits

	All female basketball players %	Croatian female basketball players %	Foreign female basketball players %
<b>The recommendation to use supplements</b>			
Someone else	3,67	2,99	4,76
Herself, parents	44,04	53,73	28,57
Doctor	11,93	17,91	2,38
The coach, fitness trainer	36,70	19,40	64,29
Herself, coach, fitness trainer	3,67	6,97	0
<b>The use of nutritional supplements</b>			
Do not use	53,81	56,21	49,40
Use	46,19	43,79	50,60
<b>Types of food supplements</b>			
Vitamins	48,04	56,72	36,36
Minerals	36,04	19,40	61,36
Proteins	11,71	17,91	2,27
Karnitine	0,90	1,49	0
Vitamins and minerals	2,70	4,48	0
Vitamins	48,04	56,72	36,36

Table 2. Knowledge about nutrition and female basketball player eating habits

	All female basketball players (n=236)	Croatian female basketball players (n=153)	Foreign female basketball players (n=83)
<b>Knowledge about nutrition</b>			
x □sd	64,06□9,78	64,26□8,76	63,70□11,48
Min	30,00	32,00	30,00
max	88,00	84,00	88,00
<b>Eating habits</b>			
x □sd	31,29□4,57	□30,71□4,24	32,36□4,99
min	17,00	17,00	21,00
max	45,00	45,00	44,00

Table 3. The use of nutritional supplements in relation to knowledge about nutrition and eating habits

Variables	ss	df	Ms	F	p
Groups (H;S)	122,5	1	122,5	6,41	0,01*
DODATCIPR (0 do not use; 1 use)	333,1	1	333,1	17,43	0,00*
grops*DODATCIPR	12,6	1	12,6	0,66	0,418193

Table 4. The use of nutritional supplements in relation about to eating habits

Female basketball players	Food supplements	H 30,157	S 32,606
Croatian	Do not use		0,00*
Foreign	Use	0,00*	

Statistically significant differences at the level  $p < 0.05$

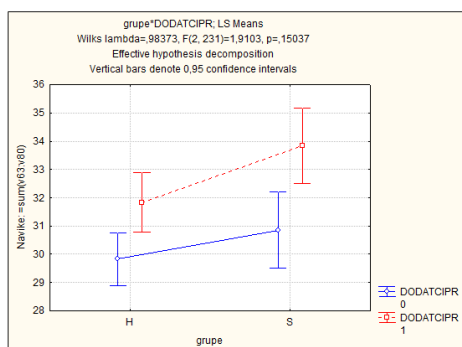


Figure 1. The graphical representation of female basketball players who use dietary supplements due to the eating habits (H= Croatian basketball; S= foreign basketball; 0= Do not use; 1= use)

## Conclusion

The aim of the study was to determine how many and which supplements used by female basketball players in Croatia, at whose recommendation and their relationship with knowledge about nutrition and eating habits.

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Croatian female basketball players mostly consume supplements recommended by parents or to the personal discretion of 53.73%, while foreign female basketball players most commonly use dietary supplements recommended by coaches and fitness trainers 64.29%. Croatian female basketball players who use dietary supplements, (43.79%) are due to inadequate knowledge about nutrition and food supplements at higher risk to undermine the health status and thus athletic performance.

Only 17.91% of them said that they had consulted with a doctor and 19.40 with a coach and fitness trainer. Of those who use supplements 56.72% take vitamins, 19.40% mineral matter, and other dietary supplements in a smaller proportion of 20%. This study found that female basketball players are not sufficiently aware of the importance of nutrition for basketball performance as well as the danger of arbitrary consumption of food supplements. All this suggests a need for additional education of female basketball players, coaches and parents on nutrition as well as the need for nutritionists in sports teams.

## KORIŠTENJE PREHRAMBENIH SUPLEMENATA KOD HRVATSKIH KOŠARKAŠICA

### Sažetak

*Cilj rada je bio utvrditi koliko i koje dodatke prehrani koriste košarkašice u Hrvatskoj te njihov odnos sa znanjima o prehrani i navikama. Iako je povećan interes o prehrani i korištenju dodataka prehrani neke sportašice ipak konzumiraju prehranu manju od optimalne. To često uključuje i promjenu u unosu ili navike. Kako bi izbjegle zdravstvene komplikacije i ozljede, jako je bitno znanje o vrstama hranjivih tvari, količini i dnevnom rasporedu obroka, prehrambenim navikama, kao i potreba za korištenjem prehrambenih dodataka. S obzirom na potencijalne nuspojave i disbalansa nutrijenata, preporuke za korištenje dodataka prehrani trebali bi uzimati samo po preporuci liječnika.*

**Ključne riječi:** *dodaci prehrani, košarkašice, prehrambeno znanje i navike, Hrvatska*

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