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**Dietetics**

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## MULTI-MINERALNI SUPLEMENTI KOJI SADRŽE BAKAR

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Bakar je esencijalni mikroelement i sastavni je deo brojnih suplemenata koje se prodaju u apotekama. Cilj studije je proveriti sadržaj i izvor bakra u suplementima, kao i zdravstvene izjave date na deklaraciji. Ukupno 10 multi-mineralnih suplemenata za odrasle koji sadrže bakar izabrano je metodom slučajnog uzorkovanja u apotekama Novog Sada. Svi podaci koji su uzeti u razmatranje nalazili su se na deklaraciji proizvoda i poređeni su sa podacima iz najnovije literature.

Sadržaj bakra u suplementima pokazao je značajne razlike: 0,5, 1, 1,2 i 2 mg, gde je 0,5 mg bila najčešća vrednost. U poređenju sa preporučenim adekvatnim unosom (1,6 mg/dan za muškarce i 1,3mg/dan za žene) uočava se da je samo u jednom suplementu sadržaj bakra (2mg) nešto viši. Izvori bakra u suplementima bili su: bakar-sulfat, bakar-citrat, bakar-glukonat, bakar-bisglicinat, svi u skladu sa odredbama koje je dala EFSA (Evropska agencija za bezbednost hrane). Što se tiče autorizovanih zdravstvenih izjava najveći broj (čak pet) odnosio se na doprinos normalnoj funkciji imunog sistema, dok je izjava o doprinosu normalnoj pigmentaciji kose i kože bila naznačena dva puta. Pored ovih izjava, jedanput su naznačene sledeće zdravstvene izjave: doprinos zaštiti ćelija od oksidativnog stresa i doprinos normalnom energetsom metabolizmu. Što se tiče neautorizovanih zdravstvenih izjava, nije pisala nijedna. Osim toga, suplement koji je imao najveći sadržaj bakra (2 mg), nije uopšte imao zdravstvenu izjavu koja se odnosi na bakar.

Uzimajući u obzir različit sadržaj bakra u suplementima i činjenicu da je prosečan unos bakra hranom 1,15-2,07mg/dan, potrošači treba pažljivo da biraju i koriste suplemente kako se ne bi prekoračio gornji tolerantni nivo unosa od 5 mg/dan.

## **MULTI-MINERAL SUPPLEMENTS THAT CONTAIN COPPER**

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Copper is an essential microelement and a component of numerous supplements sold in pharmacies. The aim of the study is to check the differences in the content of copper, the source of copper in supplements and to survey the health claims given on the labels. In total, 10 multi-mineral supplements for adults containing copper were selected by random sampling method in pharmacies of Novi Sad. All the data from the labels that were taken into consideration were compared with contemporary databases.

Copper content showed significant differences: 0.5, 1, 1.2 and 2 mg, where 0.5 mg was the most frequent value. In comparison with the recommended adequate intake (1.6 mg/day for men and 1.3 mg/day for women), it was noted that in only one supplement the content of copper (2 mg) was slightly higher. The sources of copper were: cupric sulphate, cupric citrate, cupric gluconate, copper bisglycinate, all in accordance with the EFSA provisions (European Food Safety Authority). Authorised health claim regarding contribution to the normal function of the immune system was given even on five labels, while the contribution to normal pigmentation of hair and skin was indicated twice. In addition to these claims, the following were given on one label: the contribution to the protection of cells from oxidative stress and contribution to normal energy-yielding metabolism. Regarding non-authorised health claims, no claims were given. Furthermore, the supplement with the highest content of copper (2 mg) did not have health claim related to copper at all.

Taking into account the different content of copper in supplements and the fact that the average intake of copper by food is in the range between 1.15 and 2.07 mg/day, consumers should carefully choose and use copper supplements, in order not to exceed the upper safe intake of copper (5 mg/day).

## PRVA ISKUSTVA U PRIMJENI PRAVILNIKA O DODACIMA ISHRANI U REPUBLICI SRPSKOJ

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Zakonom o hrani, koji je objavljen u Službenom glasniku RS broj 19/17. definišu se dodaci ishrani. Nakon Zakona objavljen je i Pravilnik o dodacima ishrani u Službenom glasniku Republike Srpske broj 10/18. Prema ovom zakonu i pravilniku dodaci ishrani su prehrambeni proizvodi čija je svrha dopuna uobičajene ishrane, a koji predstavlja koncentrovani izvor hranljivih materija ili druge materije prehrambenog ili fiziološkog dejstva, pojedinačno ili u kombinaciji, koji se stavljaju na tržište u doziranom obliku kao što su kapsule, pastile, tablete, pilule, vrećice praha, ampule tečnosti, bočice na kapaljku i u drugim sličnim oblicima. S obzirom na svoj specifičan sastav, oblik, primjenu kod posebnih kategorija stanovništva i mogući uticaj na zdravlje ljudi, prema zahtjevima evropskih direktiva traži se dodatna kontrola prilikom stavljanja ovih proizvoda na tržište. Dodaci ishrani koji sadrže vitamine ili minerale, kao i ostale sastojke, takođe trebaju biti u skladu sa posebnim pravilima propisanim važećom zakonskom regulativom. Cilj rada je utvrditi najčešće probleme koji se javljaju od početka primjene novog propisa. Pregledano je ukupno 30 analitičkih izvještaja o zdravstvenoj ispravnosti. Korištena je deskriptivna analiza.

Analizom analitičkih izvještaja o zdravstvenoj ispravnosti utvrđeno je da su najčešći problemi u praksi bili: utvrđivanje da li je proizvod dodatak ishrani i kod provjere sadržaja deklaracije nedostatak hranjive deklaracije. Propisi jasno regulišu kvalitet, bezbjednost i efikasnost ove grupe proizvoda što je veoma značajno jer ih je mnogo u upotrebi. Stoga je potrebno da uslovi koji su propisani regulativom budu i zadovoljeni. Legislativa koja je stupila na snagu daje mogućnost da se ova velika grupa proizvoda i njihov kvalitet stave pod kontrolu.

# FIRST EXPERIENCES ON THE APPLICATION OF THE REGULATION OF DIETARY SUPPLEMENTS IN THE REPUBLIC OF SRPSKA

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Food Act, published in the Official Gazette of the Republic of Srpska, No 19/17, lays down dietary supplements. The Regulation of dietary supplements was published after aforementioned Food Act in the Official Gazette of the Republic of Srpska, No 10/18. Pursuant to this Act and Regulation, dietary supplements mean foodstuffs intended to supplement the normal diet and which are concentrated sources of nutrients and other substances with a nutritional or physiological effect, alone or in combination, marketed in dose form such as capsules, pastilles, tablets, pills, sachets of powder, ampoules of liquids, drop dispensing bottles and other similar forms. Given their specific composition, form, application in special categories of population and possible impact on human health, additional controls are required when placing these products on the market according to the requirements of European Directives. Dietary supplements containing vitamins and minerals as well as other ingredients should also comply with the special rules prescribed by the current legislation. The aim was to ascertain the most frequent issues which have arisen since the introduction of the aforesaid Regulation. A total of 30 analytical reports on health safety were examined. Descriptive analysis was used.

A lack of nutrition information in nutrition facts table and determining whether a product was a dietary supplement were the most common problems encountered in practice and found in analytical reports on health safety. Regulations clearly regulate efficiency, quality and safety of this group of products which is very important because of its wide range in use. It is therefore necessary that the conditions specified by the Regulation are met. Legislation in force gives the opportunity to superintend this large group of products and their quality.

## KORISTI I RIZICI SUPLEMENTACIJE SELENOM

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Istraživanja o zastupljenosti selena ukazuju da se naše zemljište i životne namirnice ubrajaju u selenom najsiromašnije na svetu. Upotreba suplemenata selena je veoma važna u slučajevima kada se ishranom ne mogu obezbediti dovoljne količine ovog minerala. Cilj rada bio je da se ispita opravdanost korišćenja ove grupe preparata, koliko su korisnici upoznati sa mogućim neželjenim dejstvima preparata i da se utvrdi uloga zdravstvenih radnika u savetovanju korisnika o pravilnom korišćenju preparata.

U istraživanju je korišćen originalni upitnik kojim je anketirano 114 korisnika suplemenata selena oba pola u apotekama zdravstvene ustanove Viva Pharm u Valjevu. Dobijeni rezultati obrađeni su metodom deskriptivne statistike.

Od ukupnog broja anketiranih učesnika istraživanja 75% je koristilo suplemente sa selenom u preventivne svrhe, a među njima najveći procenat upotrebe selena zabeležen je u cilju regulacije imunološkog odgovora (51%). Preventivna upotreba suplemenata ukazuje na činjenicu da su ispitanici informisani o značaju selena u očuvanju zdravlja i podizanju imuniteta, kao i u sprečavanju nastanka različitih oboljenja. Međutim, ono što upućuje na dozu zabrinutosti i ukazuje na potrebu bolje informisanosti pacijenata o preparatima selena su odgovori na pitanje o mogućim neželjenim efektima. Čak četvrtina ispitanika (28%) nije obavestena (od strane lekara ili farmaceuta) o opasnosti od akcidentne intoksikacije u slučaju preteranog samoinicijativnog unosa ovih preparata. Bez obzira što se u ovim proizvodima nalaze subterapijske doze farmakološki aktivnih supstanci, važno je napomenuti da je ovaj esencijalni oligoelement toksičan kada se unosi duže vreme u velikim dozama i izaziva selenu.

Zbog sve veće upotrebe dijetetskih suplemenata potrebna je kontinuirana edukacija zdravstvenih radnika ali i edukacija korisnika. Osim rada na polju edukacije, farmaceut ima izuzetno važnu ulogu da prilikom samog izdavanja preparata istakne doziranje i način primene, kao i neželjene efekte do kojih može doći usled neadekvatne upotrebe.

## **BENEFITS AND RISKS OF SELENIUM SUPPLEMENTATION**

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Research of the presence of selenium indicates that our land and foodstuffs are among the poorest in the world. The use of selenium supplements is very important in cases where a sufficient quantity of this mineral can not be provided by the diet. The aim of the study was to examine the justification of the use of this group of products, how much users are aware of the selenium possible adverse effects, and to determine the role of healthcare workers in advising users on proper use of the selenium supplements.

In the research the original questionnaire was used in a survey of 114 users of selenium supplements of both sexes in the pharmacies of the Viva Pharm institution in Valjevo. The obtained results were processed using descriptive statistics.

Of the total number of surveyed participants, 75% used selenium supplements for preventive purposes, and among them the highest percentage of selenium use was recorded in order to regulate the immune response (51%). Preventive use of supplements points to the fact that respondents were informed about the importance of selenium in preserving health and raising immunity, as well as in preventing the occurrence of various diseases. However, what indicates a certain concern and points to the need to better inform patients about the selenium preparations are the answers to the question of possible side effects. Even a quarter of respondents (28%) were not informed (by a doctor or pharmacist) about the risk of accidental intoxication in case of excessive self-initiative intake of these preparations. Regardless of the fact that these products contain sub-therapeutic doses, it is important to note that this essential oligoelement is toxic when it is administered for a long time in high doses and can cause selenosis.

Due to the increasing use of dietary supplements, continuous education of health professionals is required, but also education of users. In addition to working in the field of education, a pharmacist has a very important role during preparation dispensing to emphasize the dosage and method of administration, as well as the side effects that may occur due to improper use.