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INOPTEP 2025**

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EFFECTS OF CHOKEBERRY AND TART CHERRY BASED DIETARY SUPPLEMENTS IN DYSLIPIDEMIC INDIVIDUALS

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The prevalence of obesity has increased dramatically over the last several decades. It is estimated the United States approximately 40% of women and 35% of men are obese (BMI >30 kg/m²). It is of great concern is that the prevalence of obesity has also markedly increased in children. Obesity is associated with alterations in lipid metabolism, insulin resistance and metabolic syndrome, particularly when the excess adipose tissue is located in an intra-abdominal location or in the upper chest. Moreover, obesity is a great risk factor for the development of cardiovascular disease. Epidemiological studies indicated that high intake of dietary polyphenols is connected with lower risk for development of chronic diseases such as cardiovascular, diabetes, obesity, neurodegenerative. That is why polyphenols are nowadays common ingredients in lot of dietary supplements and functional foods. Polyphenols are plant secondary metabolites widely distributed in medicinal plants, red wine, many fruits and vegetables, and their derived products. According to some researches, there is 200–300 mg of dietary polyphenols in every 100 g of fresh fruits or vegetables, and the total dietary intake of polyphenols in adults is from 700 to 1700 mg/day. Various bioactivities are connected with polyphenols such as antioxidant, antimicrobial, anti-inflammatory, antineurodegenerative, anticancer, antidiabetic, antiaging etc. Previous studies showed that consumption of *Aronia melanocarpa* extract is correlated with a positive effect on body weight, total cholesterol, low and high-density lipoproteins. The aim of our study was to evaluate the effect of combined oral consumption of two dietary supplements based on chokeberry and tart cherry juices over a period of 90 days on cholesterol, LDL, HDL, triglycerides, thickness of subcutaneous fatty tissue in different areas and safety in 46 participants with dyslipidemia. At the level of individual respondents 11 respondents (24%) had a significant improvement in cholesterol, HDL and LDL, 10 respondents (22%) had an improvement in cholesterol and LDL while there was an improvement in triglycerides in 19 subjects (41%). Although a slight decrease in cholesterol, HDL, LDL, and triglyceride levels was observed at the group level, it was not statistically significant. On the other hand, statistically significant improvement (decrease) was recorded in the thickness of subcutaneous fatty tissue in different areas i.e. in the middle of the front abdominal wall (right and left) and in the middle of the front side of the thigh (right and left). Moreover, statistically significant improvement in BMI (body mass index) was recorded from 36.53±10.72 to 30.33±6.70 (p-value 0.0001). The levels of creatinine, urea, ALT and AST values which remained within normal limits, indicated that dietary supplements did not have negative effects on the liver and kidneys during the study.

Key words: chokeberry, tart cherry, juices, dyslipidemia, obesity.

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EFEKTI DODATAKA ISHRANI NA BAZI ARONIJE I VIŠNJE KOD OSOBA SA POREMEĆENIM LIPIDNIM STATUSOM

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Prevalenca gojaznosti dramatično se povećala tokom poslednjih nekoliko decenija. Procenjuje se da je u Sjedinjenim Američkim Državama oko 40% žena i 35% muškaraca gojazno (BMI >30 kg/m²). Veoma je zabrinjavajuće da je prevalenca gojaznosti takođe značajno porasla kod dece. Gojaznost je povezana sa promenama u metabolizmu lipida, insulinskom rezistencijom i metaboličkim sindromom, posebno kada se višak masnog tkiva nalazi na intraabdominalnoj lokaciji ili u gornjem delu grudnog koša. Štaviše, gojaznost je veliki faktor rizika za razvoj kardiovaskularnih bolesti. Epidemiološke studije su pokazale da je visok unos polifenola u ishrani povezan sa manjim rizikom od razvoja hroničnih bolesti kao što su kardiovaskularne, dijabetes, gojaznost, neurodegenerativne. Zato su polifenoli danas uobičajeni sastojci mnogih dodataka ishrani i funkcionalne hrane. Polifenoli su biljni sekundarni metaboliti široko rasprostranjeni u lekovitom bilju, crnom vinu, mnogim vrstama voća i povrća i proizvodima od njih. Prema nekim istraživanjima, u unosom 100 g svežeg voća ili povrća obezbedi se oko 200-300 mg polifenola u ishrani, a ukupan unos polifenola hranom kod odraslih se kreće od 700 do 1700 mg/dan. Različite biološke aktivnosti su povezane sa polifenolima kao što su antioksidativna, antimikrobna, antiinflamatorna, antineurodegenerativna, antikancerogena, antidiijabetična, antiaging idr. Ranija istraživanja su pokazala da je konzumacija ekstrakta vrste *Aronia melanocarpa* u korelaciji sa pozitivnim dejstvom na telesnu težinu, ukupni holesterol, lipoproteine male i velike gustine. Cilj našeg istraživanja bio je da se proceni efekat kombinovane oralne konzumacije dva dijetetska suplementa na bazi sokova od aronije i višnje u periodu od 90 dana na holesterol, LDL, HDL, trigliceride, debljinu potkožnog masnog tkiva u različitim regijama i bezbednost suplemenata kod 46 učesnika sa dislipidemijom. Na nivou pojedinačnih ispitanika 11 ispitanika (24%) imalo je značajno poboljšanje u nivou holesterola, HDL i LDL, 10 ispitanika (22%) imalo je poboljšanje u nivou holesterola i LDL dok je došlo do poboljšanja nivoa triglicerida kod 19 ispitanika (41%). Iako je uočeno blago smanjenje nivoa holesterola, HDL, LDL i triglicerida na nivou cele grupe, to nije bilo statistički značajno. Sa druge strane, zabeleženo je statistički značajno poboljšanje (smanjenje) debljine potkožnog masnog tkiva u različitim regijama, odnosno na sredini prednjeg trbušnog zida (desno i levo) i na sredini prednje strane butine (desna i leva). Takođe, zabeleženo je statistički značajno poboljšanje BMI (indeks telesne mase) sa prosečno 36,53±10,72 na 30,33±6,70 (p-vrednost 0,0001). Nivoi kreatinina, uree, ALT i AST koji su ostali u granicama normale, ukazuju na to da dijetetski suplementi nisu imali negativne efekte na jetru i bubrege tokom studije.

Ključne reči: aronija, višnja, sokovi, dislipidemija, gojaznost

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