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Dark Chocolate and Metabolic Syndrome; Do Polyphenols All that Matter?

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The prevalence of cardiovascular diseases is considerably high among individuals with metabolic syndrome (MetS). Establishment of dietary interventions that prevent the development of cardiovascular risk factors in this high-risk group seems crucial. With this regard, study conducted by Mozaffari-Khosravi & colleagues (Mozaffari-Khosravi et al., 2016) is welcomed. The researchers showed that daily consumption of two different servings of dark chocolate (DC) for eight weeks had no beneficial effect on blood pressure and oxidative stress in patients with MetS. They compared their findings with other studies based on differences in servings of DCs and their polyphenolic content.

Current evidences on the anti-inflammatory and antihypertensive properties of DC mainly focus on its polyphenolic content. Although the possible role of magnesium which is found in high amounts in DC (327 mg/100g DC) was missed in the present study as well as most of the previous studies. An inverse correlation was reported between dietary magnesium intakes with risk of MetS (Sarrafzadegan et al., 2016). Moreover, previous clinical trials have shown favorable effects of magnesium supplementation on blood pressure which might be related to its role in reducing systemic inflammation, improving glycemic status, and vasorelaxation (Rodriguez-Moran and Guerrero-Romero, 2014, Rosanoff and Plesset, 2013).

Recently, a meta-analysis showed that supplementation with magnesium at a dose of 300 mg/day can elevate serum levels and decrease blood pressure (Zhang et al., 2016). Thus, it is expected that a 100-g bar of DC could have beneficial effects on blood pressure as it was already confirmed by Grassi et al., study (Grassi et al., 2005). They showed that consumption of 100 g DC for 15 days significantly reduced blood pressure in patients with essential hypertension.

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In short, health benefits of DC consumption on cardiovascular system should be interpreted in the context of both polyphenols and magnesium. It would had been noteworthy if researchers had reported the magnesium content of DC, dietary intake of magnesium throughout the study, and changes in serum levels of magnesium to determine whether magnesium in DC could affect the study parameters. However, due to the consumption of low servings of DC in this study, the positive effects of both polyphenols and magnesium might not be clinically evident.

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