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Editorial

How Much Caffeine is Too Much for Young Adolescents?

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Caffeine intake is related to various human health issues such as acute toxicity, cardiovascular disease, poor dietary behavior, bone density and calcium deficiency, and developmental and reproductive problems [1]. Dietary habits, including caffeine intake, are initiated in childhood and tend to continue into adulthood. The susceptibility to many noncommunicable diseases is very closely connected to dietary habits [2]. However, adequate knowledge and understanding of nutritional intake and dietary recommendations can help adolescents to achieve a healthy status [3]. Grosso et al [4] observed that improving nutritional knowledge in children and young adolescents led them to adopt better dietary habits. Caffeine consumption is a dietary habit that has physiological, behavioral, and subjective effects. Despite its widespread consumption, few studies have described the impact of caffeine on health in children and adolescents.

Caffeine has been shown to be associated with both beneficial and harmful health effects. Scientific and epidemiological evidence has shown that amongst the healthy adult population, moderate caffeine consumption (400 mg) per day is not associated with adverse health effects such as general toxicity, cardiovascular effects, increased incidence of cancer, or effects on bone status [5]. Little is known about the adverse effects of caffeine consumption among adolescents [6]. The amount of caffeine required to produce adverse effects varies from person to person, depending on gender, age, weight, and differences in susceptibility [7]. There is growing concern about the increased consumption of caffeinated foods including coffee, energy drinks, tea, and chocolate products, particularly among adolescents [8]. The principle

sources of caffeine intake among adolescents are sweetened coffee and energy drinks, with a daily caffeine intake below the current suggested maximum acceptable levels for adolescents (2.5 mg/kg body weight/day or 100-175 mg/day with body weight 40-70 kg) [9]. However, some researchers have reported that excessive caffeine intake by adolescents has been associated with a number of detrimental health effects such as nervousness, irritability, nausea, cardiovascular symptoms, sleep impairment, osteoporosis, and gastric ulcers [10]. Recently, excessive use of energy drinks has been linked to deaths in the United States and Canada [11]. The level of caffeine intake varies depending on the predominant types of beverages consumed and the specific population groups [12].

In the current issue of Osong Public Health and Research Perspectives, Kim examined health-related nutritional knowledge and dietary behavior related to caffeine intake amongst high school students [13]. In this study, the author hypothesized that higher caffeine intake was associated with lower nutritional knowledge and inappropriate dietary behavior amongst Korean high school students. The author investigated daily caffeine intake amongst high school students and determine health-related nutritional knowledge and dietary behavior, identifying the factors associated with caffeine intake.

The author concluded that the low caffeine intake group in the study had better nutritional knowledge related to bone and sleep health, and better dietary behavior related to sleep health, compared with the high caffeine intake group. This study had several limitations that need to be addressed. The daily mean caffeine intake in the study sample should

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be interpreted with caution as this does not represent a normal distribution of what might be expected for caffeine consumption in the general adolescent population. In addition, all possible sources of caffeine were not considered. However, it would be interesting to conduct further studies to investigate the effects of caffeine consumption in the adolescent population, with larger studies enabling a more detailed analysis of the relationship between the level of caffeine consumption and the degree of nutritional knowledge, with the aim of improving healthy living and nutritional choices in this age group.

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