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Consumption of energy drinks in a group of young athletes

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Abstract

Energy drinks (EDs) are very popular among adolescents and young adults. Excessive consumption of EDs may cause various health risks due to the presence of caffeine and sugar. The aim of this study was to evaluate the consumption of energy drinks in a group of young athletes. Obtained results showed that 56% of participants in Bydgoszcz and 89% in Toruń drink EDs. Quite frequent consumption declared 37% and 29% of young athletes in Bydgoszcz and Toruń, respectively. Participants make the decision of EDs consumption with no particular reason or when they are thirsty. Unfortunately, some students mixed energy drinks with alcohol (AMED).

Key words: energy drinks, athletes, caffeine, sports, AMED

Introduction

Energy drinks (EDs) are very popular among adolescents and young adults, who consume them for various reasons. Commercial advertisements falsely suggest that EDs should be consumed by young people who wants to gain more energy. Meanwhile, the standard can of ED (250 mL) contains 80 mg of caffeine and large amounts of sugar, and other ingredients such as taurine, inositol, guarana etc. [1]. Safe limits of caffeine consumption have not been determined, but research suggests that the majority of healthy adults can consume up to 400 mg caffeine a day, and children under 12 years of 2.5 mg caffeine/kg body weight [2, 3]. Various research showed that excessive intake of EDs can cause insomnia, anxiety, nervousness, irritability, tachycardia, increase of blood pressure, which in long-term may result in higher risk of cardiovascular diseases [4-9]. An additional problem is mixing energy drinks with alcohol (AMED), especially by young adults. These could lead to risky behavior (such as excessive alcohol consumption, smoking, drug abuse and violence), and consequently may cause cardiac problems or even death [10-13]. Caffeinated energy drinks are frequently consumed by children and adolescents in order to enhance education achievement and athletic performance. Some young athletes consume caffeinated EDs encouraged by coaches [14], or it's their own decision. The study showed that adolescents consumed EDs before and after physical effort (13% and 10%, respectively) [15].

Considering the above, there is a need to analyze the consumption of energy drinks, the reasons and knowledge of adolescents, especially participating in sports. Therefore, the aim of this study was to evaluate the consumption of energy drinks in a group of young athletes.

Materials and Methods

The study was conducted in two randomly selected primary schools in Bydgoszcz and Toruń on a group of 271 students aged 11-16 years, who declared sports activity. The research tool was the validated questionnaire, used and described in detail in our previous studies [15]. The study was carried out between January and March 2018.

Result and Discussion

Results obtained in Bydgoszcz (mean age 12.8 years; n=121) showed that 86% adolescents participate in various sports, 52% daily and 32% 2-3 times per week (Table 1). The most popular activities were: volleyball (28%), swimming (25%), football (18%) and athletics (12%). Whereas, results from Toruń (mean age 13.8 years; n=150) showed that 64% students

declared physical activity (67% 2-3 times per week and only 17% daily). The most common sports were football (41%) then swimming and athletics (13% each).

Table 1. Participants' characteristics

	Bydgoszcz	Toruń
Age (average)	12.8	13.8
Men	76	70
Women	45	80
BMI (average)	18.4	19.8
Practising sports		
Yes	104	96
No	17	37
Frequency of sports		
daily	52%	17%
2-3/week	32%	54%
1/week	10%	15%
less than 1/week	5%	5%

Participants declared the consumption of energy drinks on the level of 57% (Toruń) and 48% (Bydgoszcz), regardless of the sport activity. While, in the group of young athletes EDs intake was higher: 89.5% and 56% in Toruń and Bydgoszcz, respectively (Figure 1).

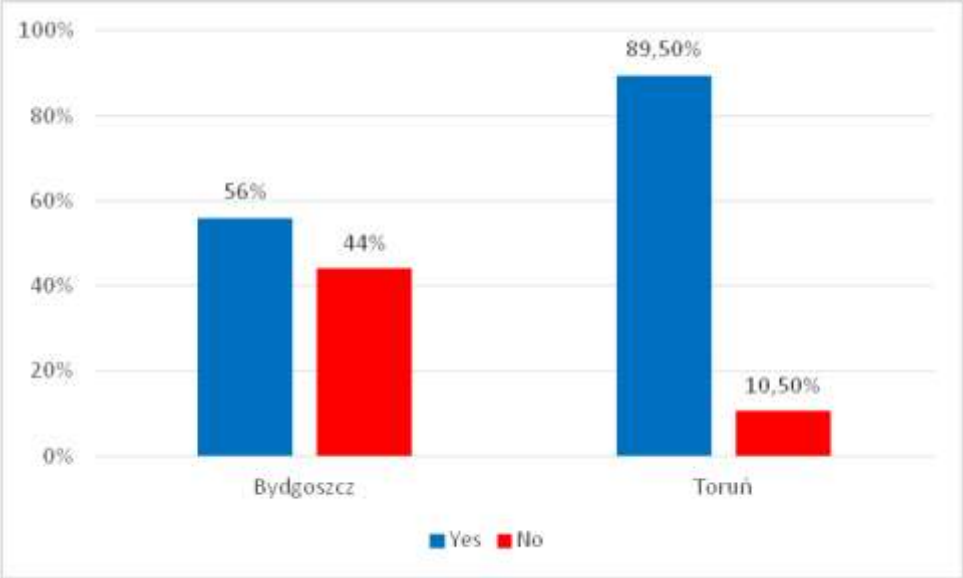

Figure 1. Consumption of energy drinks in a group of young athletes

Collected data showed that 37% of young athletes in Bydgoszcz consume EDs quite often, i.e. 9% daily and 28% 1-3 times a week. Whereas, students in Toruń drink EDs a bit less frequent, i.e. 29% quite often and 7% daily (Figure 2).

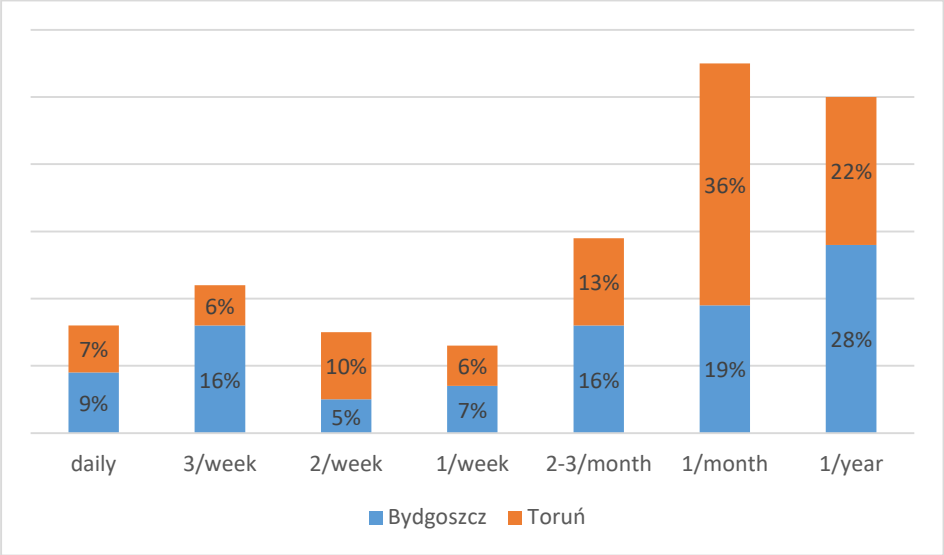

Figure 2. Frequency of EDs consumption in a group of young athletes

Considering the reasons of EDs consumption, obtained results showed that participants in Bydgoszcz drink them with no particular reason (34%) or when they are thirsty (36%). Some students consume EDs in order to prevent fatigue (26%), before physical activity (17%) and during parties (17%). On the other hand, participants in Toruń drink EDs with no particular reason (43%), when they are thirsty (17%), preventing fatigue (10%) and before physical activity (9%). The most popular brands of energy drinks were Monster, Tiger and Red Bull.

The survey have also include questions concerning the composition of EDs. Over half of students declared knowledge of EDs ingredients (58% and 53% in Bydgoszcz and Toruń, respectively). Most often they indicated sugar (50%) and caffeine (46%). Other EDs ingredients such as taurine, vitamins, minerals etc. were rarely indicated.

Another issue of this study were health disorders reported after consumption of EDs. Such problems declared 19 students in Toruń and 9 in Bydgoszcz. The most often noted disorders were: abdominal pain (14 persons), headache (10), nausea (9), arrhythmia (8) and diarrhea (3).

Furthermore, some adolescents admitted to mixing energy drinks with alcohol (AMED). These risky and dangerous procedure concerned 7% participants in Bydgoszcz and 11% in Toruń.

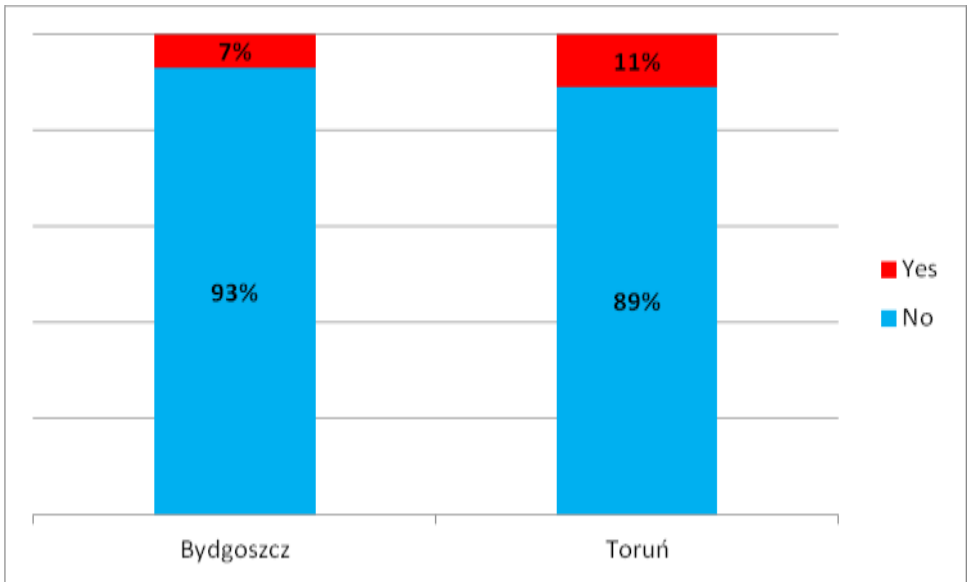

Figure 3. Consumption of AMED among participants the

Our study showed that energy drinks are very popular among young athletes aged 11-16 years. Among students in Bydgoszcz the consumption rate was nearly 60%, whereas among students in Toruń it was much higher and reach about 90%. EFSA have already reported that 41% of adolescent at European consumed energy drinks while undertaking sporting activity [16]. Our study showed that daily consumption of EDs in a group of young athletes was 9% and 7% in Bydgoszcz and Toruń, respectively. In other studies, only 1.3% of adolescents (aged 11 to 13 years) in north-eastern Italy consumed EDs daily [17]. Furthermore, groups of adolescent athletes who declared intake of EDs once a week (7% and 6%) or once a month (19% and 36%) were larger in our study (Figure 2) than in the Italian report (5.5% and 6.5%, respectively) [17]. Other studies have showed that EDs were very popular among adolescent [18, 19].

In our study, more than half of young athletes reported knowledge of EDs composition. Sugar and caffeine were indicated most often (approx. 50%). Other researchers also reported that young people were aware of EDs ingredients and indicated caffeine first [15, 17, 20]. Unfortunately, some people have trouble with distinguishing EDs and drinks designed for

athletes [19]. Moreover, just as in our study, adolescents consuming EDs felt various discomforts or health disorders [19].

Some of young athletes admitted mixing energy drinks with alcohol (AMED). These practices were more often in Toruń. Such bad habit was also observed in other studies, which pointed that it could cause risky behavior and endanger health [21].

Conclusion

- Young athletes consume energy drinks often than others.
- Participants in Toruń drink EDs more frequent than in Bydgoszcz.
- Above 30% athletes in Bydgoszcz and above 40% in Toruń consumed EDs with no particular reason or when they are thirsty (36% and 17%, respectively).
- More than half of participants know EDs ingredients, mainly caffeine and sugar.
- Unfortunately, some young athletes consume AMEDs.

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