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The content of the vitamins in daily food rations youth 16-18 summer with Chełma and its surroundings

Zawartość witamin w całodziennych racjach pokarmowych młodzieży 16-18 letniej z Chełma i okolic

Summary

The purpose of this work was to determine the content of the vitamins in daily food rations (CRP) 16-18 summer youth living in Chełm and their surroundings. Intakes of vitamins, has been assessed on the basis of intelligence on intakes of 24 hours preceding the interview. In the test participated 208 persons (including 119 girls and 89 boys). After analysis of the content of the vitamins in the CRP found many irregularities. Recorded in allowances both girls and men too low supply following vitamins: D and folate. In addition, girls were found in allowances lower than recommended standard (RDA) content of vitamin B₁. By contrast, in the CRP boys was lower than recommended standard, the supply of vitamin B₁₂ deficiency.

Key words: youth, vitamins, daily food rations (CRP)

Streszczenie

Celem niniejszej pracy było określenie zawartości witamin w całodziennych racjach pokarmowych (CRP) młodzieży 16-18 letniej zamieszkującej Chełm i okolice. Spożycie witamin zostało oszacowane na podstawie wywiadu o spożyciu z 24 godzin poprzedzających wywiad. W badaniu wzięło udział 208 osób (w tym 119 dziewcząt i 89 chłopców). Po przeprowadzonej analizie zawartości witamin w CRP stwierdzono wiele nieprawidłowości. Zanotowano w dietach zarówno dziewcząt jak i mężczyzn zbyt niską podaż następujących witamin: D i folianów. Ponadto w dietach dziewcząt stwierdzono niższą niż zaleca norma (RDA) zawartość witaminy B₁. Natomiast w CRP chłopców stwierdzono niższą niż zaleca norma, podaż witaminy B₁₂.

Słowa kluczowe: młodzież, witaminy, całodziennie racje pokarmowe (CRP)

Introduction

One of the factors that are a major impact on human health is nutrition. (Górna et al. 2012). Essential elements, without which the human body is unable to function properly, are vitamins. Body needs of small quantities of these compounds, however, the proper development and growth are without them impossible (Grochowska-Nidworok et al. 2012). A plethora of them, or a shortage in the human diet may contribute to the establishment of a sickness teams. The purpose of this work was to determine the content of selected vitamins in daily food rations youth 16-18-letniej with Chełma and localities.

Materials and methods

The survey was covered by 208 persons (including 119 girls and 89 boys), aged 16-18 years living in Chełm and their surroundings (lubelskie voivodship). Tests have been carried out in spring 2012. Young people participating in the test gave oral permission to participate in an interview. Persons participating in the test declared that they don't take vitamin supplements, and / or vitamins- minerale. Content assessment vitamins in daily food rations has been carried out on the basis of intelligence on intakes of the last 24 hours prior to the survey. To determine the portion sizes has been reached „Photo Album of Products and Dishes” (Szponar et al. 2000). For most vitamins used standard set at the level of the recommended allowance (RDA) only for vitamin E and D have been the norm as set down at the level sufficient intake (AL) (Jarosz, 2012). In order to examine the daily food rations, individual products food and dishes have been introduced into a computer programme Diet 4.0. In the calculations have been taken into account the size of the take-off on the way technology, in accordance with the recommendations of Nadolna et al. (Nadolna et al. 1994; Nadolna et al. 2000).

The results obtained have been developed statistically using programme Statistica 8.0. companies StatSof

A discussion of the results of research

The average content of vitamins in daily food rations (CRP) girls and boys aged 16-18 years living in Chełm and their surroundings is shown in table 1 and 2.

Content of vitamin a in daily food rations both girls and boys, was higher than recommended by norm. In the case of girls the content of the vitamin was $712,17 \pm 312,7\mu\text{g}$, which represents 101,74% implementation of standards (RDA). But in the case of the boys the supply of vitamin A was $912 \pm 327,4\mu\text{g}$, (101,33% implementation of the standard).

The supply of vitamin D from the diet, for both sexes, was significantly lower than recommended by norm. Content of vitamin D in the CRP girls amounted to $2,79 \pm 1.4 \mu\text{g}$ (55,8% implementation of standards), and boys $3,12 \pm 1,9 \mu\text{g}$ (62.4% of implementation of the standard). The implementation of the demand for vitamin E in the group of girls remained $8,97 \pm 3,17\text{mg}$, while boys $10,27 \pm 7,45\text{mg}$. In both cases, the supply was higher than recommended by norm. Content of vitamin C in daily food rations exceed daily demand for this vitamin, in the case of girls on the 21,75%, while boys 29,87%. The average content in daily food rations thiamine was for girls, lower than the recommended standards and amounted to $0,98 \pm 0,27\text{mg}$ (89,09% of the standard). While the content of vitamin B₁ in allowances boys amounted to $1,22 \pm 0,58\text{mg}$ (101,67% of the standard). In allowances girls and boys content of vitamin B₂ was higher in relation to existing standards The average content riboflavin in CRP girls amounted to $1,24 \pm 0,93\text{mg}$, while boys $1,43 \pm 0,89\text{mg}$. In both the CRP girls and boys found higher than recommended standard (RDA) consumption niacin.

Analysing the content of vitamin B₆ in CRP both sexes can be concluded that it was higher than recommended standard (RDA). In the case of girls it was $1,29 \pm 1,1\text{mg}$ (107,5% implementation of standards), while boys $1,41 \pm 0,93\text{mg}$ (108,46% of the standard).

In the case of cyanocobalamin (vitamin B₁₂) have been recorded for girls supply that vitamins at a higher level than recommends standard (RDA), and boys below the standard.

Diet both girls and boys contained low supply folate, in the case of girls it amounted to $274.2 \pm 112.9 \mu\text{g}$ (68,55% of the standard). In the case of boys have been recorded in the level of folate diet at the level of $294,7 \pm 129,3 \mu\text{g}$ (73,67% of the standard).

Tab. 1. The average content selected vitamins in daily food rations (CRP) girls aged 16-18 years living in Chełm and their surroundings, and the comparison received content with the standards in force

Vitamins	Girls n= 119 Middle \pm SD	Standard	% of the implementation of standards
Vitamin A (retinol eq.) [μg]	712,17 \pm 312,7	700	101,74
Vitamin D [μg]	2,79 \pm 1,4	5	55,8
Vitamin E [mg]	8,97 \pm 3,17	8	112,12
Vitamin C [mg]	91,31 \pm 59,4	75	121,75
Vitamin B ₁ [mg]	0,98 \pm 0,27	1,1	89,09
Vitamin B ₂ [mg]	1,24 \pm 0,93	1,1	112,72
Vitamin B ₆ [mg]	1,29 \pm 1,1	1,2	107,5
Vitamin B ₁₂ [μg]	2,53 \pm 1,49	2,4	105,42
Niacin [mg]	15,9 \pm 10,2	14	113,57
Folate [μg]	274,2 \pm 112,9	400	68,55

SD- standard deviation

Tab. 2. The average content selected vitamins in daily food rations (CRP) boys aged 16-18 years living in Chełm and their surroundings, and the comparison received content with the standards in force

Vitamins	Boys n=89 Middle \pm SD	Standard	% of the implementation of standards
Vitamin A (retinol eq.) [μg]	912 \pm 327,4	900	101,33
Vitamin D [μg]	3,12 \pm 1,9	5	62,4
Vitamin E [mg]	10,27 \pm 7,45	10	102,7
Vitamin C [mg]	97,4 \pm 52,1	75	129,87
Vitamin B ₁ [mg]	1,22 \pm 0,58	1,2	101,67
Vitamin B ₂ [mg]	1,43 \pm 0,89	1,3	110,0
Vitamin B ₆ [mg]	1,41 \pm 0,93	1,3	108,46
Vitamin B ₁₂ [μg]	1,72 \pm 1,1	2,4	71,67
Niacin [mg]	17,2 \pm 8,9	16	107,5
Folate [μg]	294,7 \pm 129,3	400	73,67

SD- standard deviation

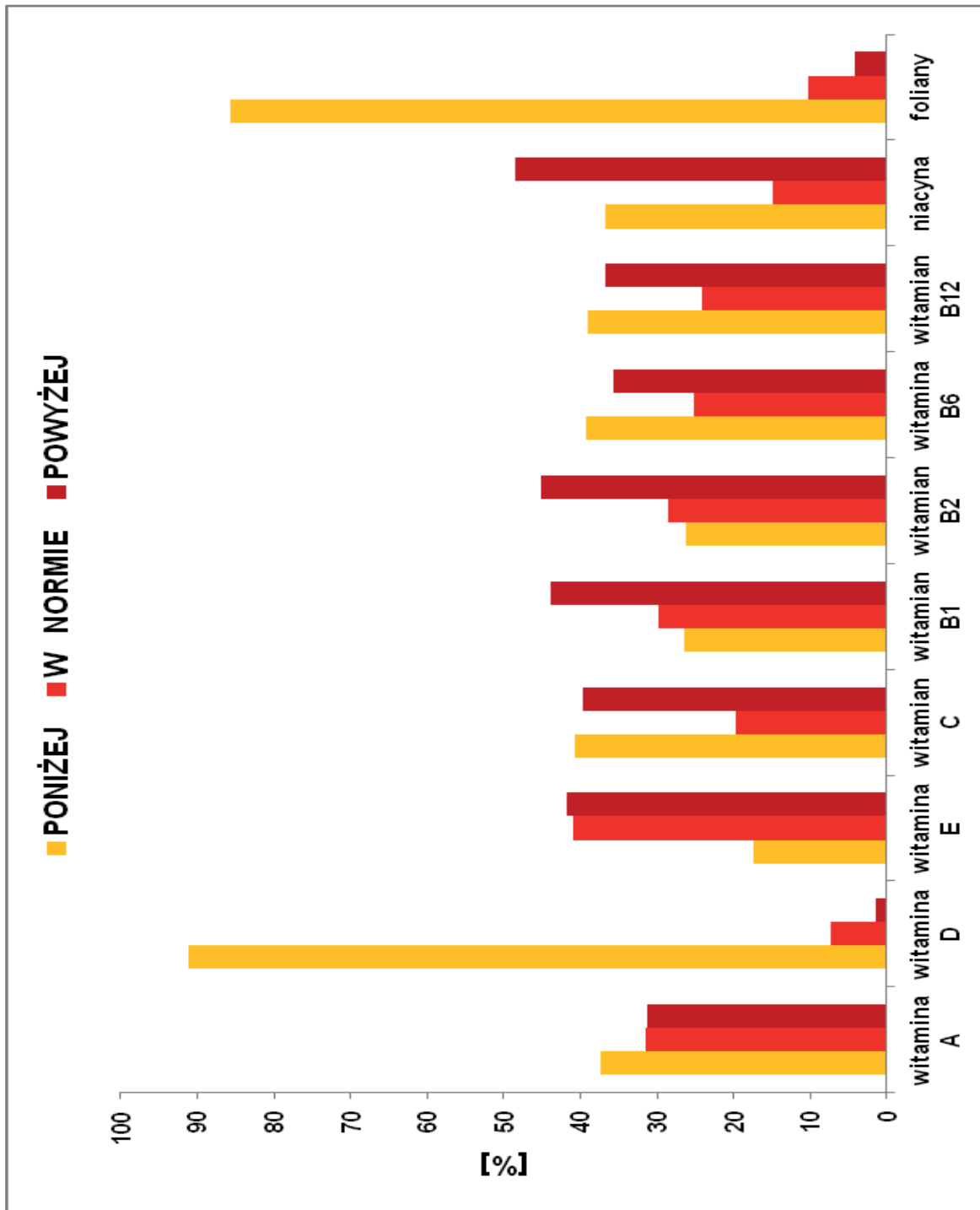


Fig. 1. Division of the ration of nutritional girls aged 16-18 from Chelms and surroundings

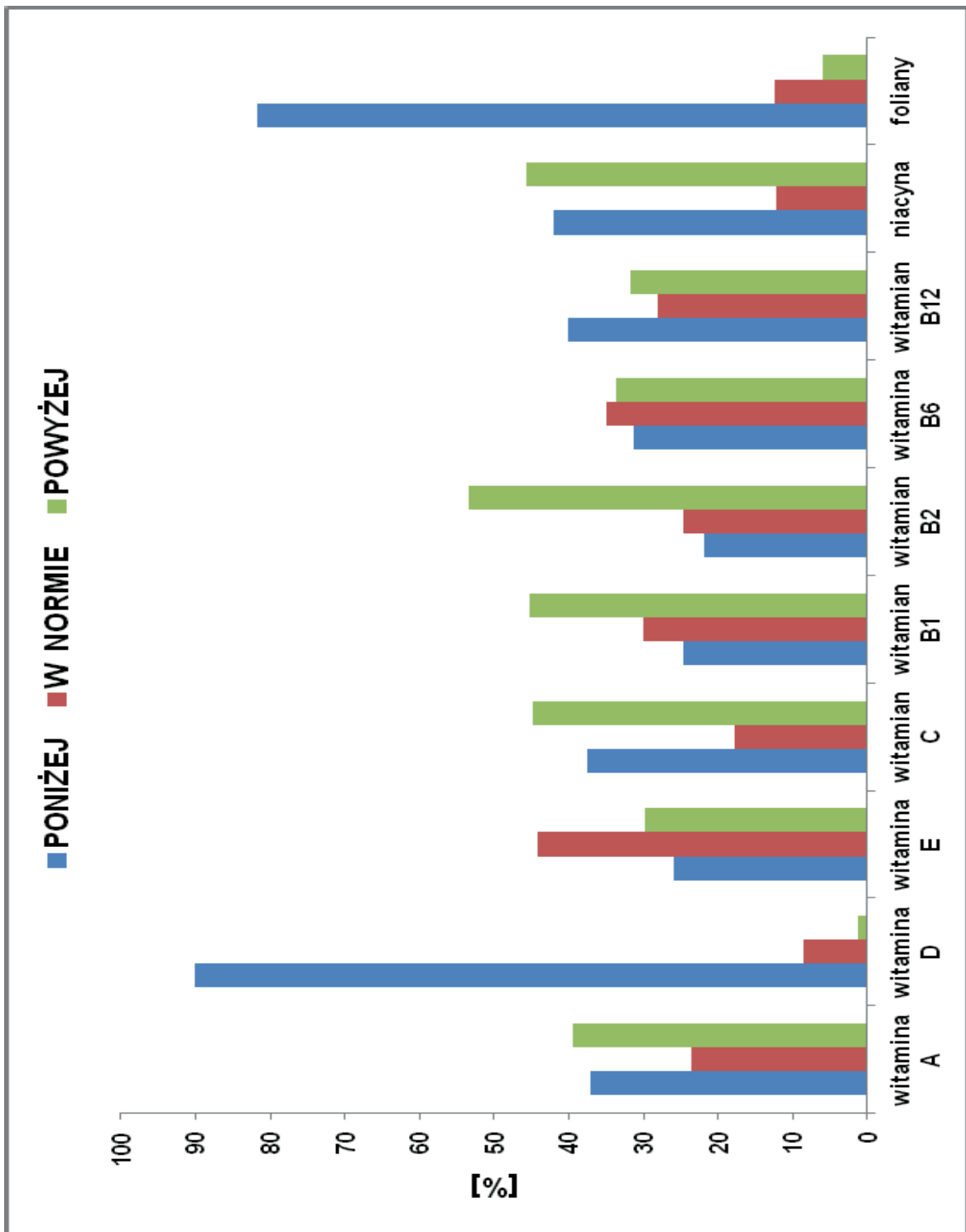


Fig. 2. Division of the ration of nutritional boys aged 16-18 from Chełm and surroundings

Discussion

Calculation of the average content of the vitamins in daily food rations girls and boys aged 16-18 years with Chełma and the surrounding areas is shown in table 1 and 2.

In assessing diet in people aged 16-18 years found many irregularities, which also confirms many authors in it's publications (Wądołowska, 2010; Charzewska et al. 2011: Krela-Kaźmierczak, 2000: Jakubik et al. 2006).

In this work is established both in the diet of girls and boys higher intakes of vitamins a than recommends norma. Similar results obtained in their research also Goluch-Koniuszy and Fugiel by examining the diets students of middle school in Szczecin (Goluch-Koniuszy, Fugiel, 2009). The average intake of vitamin d covered standard (RDA) only 55,8%, compared to girls and allowances in 62.4% for boys. Similar results were also observed in the case of menus grad students in Białystok. While different results obtained in their research Affenito et al. (2007), who were tested for subsistence american girls, which on average eat witamine D in quantities 5,8-6,0 μg, which covered the norm in more than 100%. Low levels of intake of vitamin D in the respondents is worrying. a long-term shortage of vitamin D can contribute to the speech rickets of children, while adults osteomalacji or osteoporosis (Tukaj, 2008).

Also in the case of both sexes recorded lower supply in daily food rations vitamin E.

Similar results obtained Regulska-Iłow et al. (2009) when analysing diets students of grammar school in Oleśnica.

The level of vitamin C in the test daily food rations was higher than recommended standard, in the case of both girls and boys.

Also Szewczyński et al. (2006) in examining the participation of antioxidant vitamins nutrition school pupils with Warsaw zanotowali higher than recommends standard (RDA) share of vitamin C in allowances.

In the case of the contents of thiamin hydrochloride daily food rations have been recorded in the case of girls lower supply of that vitamin than recommends norma RDA (89,09%) while slightly higher than recommended standard in the case of boys (101,67%). similar dependency received in their research Regulska-Iłow et al. (2009).

The content of riboflavin menus people of both sexes participating in an interview, was higher than recommends standard. In contrast, the content of vitamin B₂ in daily food rations students of grammar school in Oleśnica. Occurred in the case of girls lower supply of that vitamin in the diet, and for boys higher.

In the diet of young people of the female and male stated higher intakes of vitamin B₆ in relation to the standards (in case of girls by 7,5%, while boys 8,46%). Ostrowska et al. (2003) did not show any derogations from the norm. Vitamin B₆ is responsible for e.g. proper supply in the body homocysteine (Iłow et al. 1999).

The level of niacin in allowances persons participating in an interview, for both sexes was higher than recommended by norma. Similar results obtained Markiewicz-Żukowska et al. (2011) in examining the nutritional value daily food rations students of grammar school with internat in the Zambrowie.

In the case of girls reported exceeding the standards in terms of cyanocobalamin (B₁₂). Vitamin that involved mainly meat-based products, fruit and vegetables almost this vitamins don't contain allows us to say that the diet girls is rich in meat products.

Excess of that vitamin at the same time high supply of vitamin C, may cause nosebleeds. In the case of boys it was found that a lower share of that vitamin in daily food rations than recommended by norma. B₁₂ deficiency causes anaemia Kosek (1996) in examining diet of children and young people living in one of the homes in Krakow said 34% surplus that vitamin. There was very low levels of intake folate for both sexes covering standard (RDA) only in the event of daily subsistence allowance girls at the level of 68,55% and in case of menus boys 73,67%. Similar results obtained Markiewicz-Żukowska et al. (2011), by examining the diet of young people residing students of grammar school with internat in the Zambrowie. A shortage of folic acid may contribute to creating defects neural tube disorders of the functioning of the nervous system, and cardiovascular disorders (Czeczot, 2008).

Conclusion

1. In the case of vitamins soluble in fats, found lower, for both sexes than recommended standard, the dietary intake of vitamin D.
2. It was found for both sexes low supply folianów in daily food rations.
3. It was found in low supply CRP girls vitamin B₁
4. In the CRP boys have been recorded lower than recommended by norma intakes of vitamin B₁₂ deficiency.

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