Selected individual determinants of nutritional behaviours among Polish athletes performing team sports

Niektóre indywidualne uwarunkowania zachowań żywieniowych polskich sportowców trenujących gry zespołowe

Maria Gacek

Zakład Medycyny Sportowej i Żywienia Człowieka, Akademia Wychowania Fizycznego w Krakowie

Wprowadzenie. Zachowania zdrowotne, w tym żywieniowe, różnych grup populacyjnych są warunkowane szerokim spektrum czynników socjo-ekonomicznych, kulturowych i osobowościowych. Wysokie poczucie optymizmu i satysfakcji życiowej są ważnymi zasobami osobistymi sprzyjającymi zachowaniom prozdrowotnym.

Cel. Analiza zachowań żywieniowych polskich sportowców trenujących gry zespołowe w zależności od płci oraz poziomu dyspozycyjnego optymizmu i satysfakcji z życia.

Materiały i metody. Badania przeprowadzono w grupie 518 osób w wieku 19-34 lata wyczynowo trenujących gry zespołowe, w tym 252 kobiet i 266 mężczyzn. W badaniach zastosowano: autorski walidowany kwestionariusz zachowań żywieniowych oraz Test Orientacji Życiowej (LOT-R) i Skalę Satysfakcji z Życia (SWLS), a w analizie statystycznej: regresję logistyczną i regresję liniową.

Wyniki. Wykazano, że mężczyźni częściej w diecie uwzględniali wodę mineralną, a kobiety surowe warzywa. Kobiety częściej także ograniczały spożywanie tłuszczów zwierzęcych, produktów fast food i słodzonych napojów gazowanych ($p<0,01$). Sportowcy o wysokim poziomie dyspozycyjnego optymizmu i satysfakcji z życia częściej spożywali warzywa lub owoce, a zawodnicy o wysokim poziomie optymizmu istotnie częściej deklarowali także codzienne spożywanie olejów roślinnych i innych tłuszczów roślinnych ($p<0,01$).

Wnioski. Omawiane badania wykazały zróżnicowanie niektórych zachowań żywieniowych polskich sportowców trenujących gry zespołowe w zależności od płci oraz analizowanych cech indywidualnych, ze wskazaniem na bardziej racjonalne w grupie kobiet niż mężczyzn oraz sportowców o wyższym nasileniu dyspozycyjnego optymizmu i satysfakcji z życia.

Słowa kluczowe: *dyspozycyjny optymizm, satysfakcja z życia, zachowania żywieniowe, sportowcy, gry zespołowe*

Introduction. Health-related behaviors of different population groups, including nutrition, are determined by a broad spectrum of socio-economic, cultural and personality factors. A high optimism and life satisfaction are important personal resources conducive to pro-health behaviours.

Aim. To analyze eating habits of Polish sports people playing team sports depending on sex and qualities such as dispositional optimism and satisfaction with life.

Material & method. The study involved a group of 518 Polish sports people professionally playing team sports. The participants were 252 women aged 19-34 and 266 men aged 19-34. The tools used in the study were: an original eating habits questionnaire, the Life Orientation Test-Revised (LOT-R; Test Orientacji Życiowej) and the Satisfaction With Life Scale (SWLS; Skala Satysfakcji z Życia). Logistic regression and linear regression were applied in statistical analyses.

Results. It was demonstrated that men more often chose mineral water, and women more often ate raw vegetables limited the consumption of animal fats, fast food and sweet fizzy drinks ($p<0.01$). Sports people with high levels of dispositional optimism and satisfaction with life more often consumed fruit or vegetables, and those with high levels of optimism significantly more often declared daily consumption of vegetable oils and other vegetable fats as well ($p<0.01$).

Conclusion. The presented study showed differences between some eating habits of Polish sports people playing team games depending on sex and the analyzed individual qualities, with more rational choices displayed by women than by men, as well as by people with higher levels of dispositional optimism and satisfaction with life.

Key words: *dispositional optimism, satisfaction with life, eating behaviors, athletes, team sports*

© Hygeia Public Health 2019, 54(4): 243-250

www.h-ph.pl

Nadesłano: 11.08.2019
Zakwalifikowano do druku: 30.10.2019

Adres do korespondencji / Address for correspondence
dr hab. Maria Gacek
Zakład Medycyny Sportowej i Żywienia Człowieka
Akademia Wychowania Fizycznego w Krakowie
ul. Al. Jana Pawła II 78, 31-571 Kraków
tel. 691 913 162, e-mail: maria.gacek@awf.krakow.pl

Introduction

Balanced diet, satisfying the demand for energy, proteins, B-group vitamins and antioxidants, helps maintain the health potential and improve the effort tolerance of sports people [1-4]. For the physiological demand for nutrients to be adequately satisfied, it is necessary to plan varied food rations including different food products in accordance with the recommendations for persons engaging in intensive physical exercise. The diet of sports people can be rationalized

using food pyramids, including the Swiss one, which is the model recommended for highly active people. The base of the pyramid is drinks without sugar, and its top is sweets, salty snacks and sweet drinks, with fruit and vegetables, whole-grain cereal products and legumes, protein products and oils, fats and nuts in between, recommended for consumption in different amounts and with different frequencies [5-7]. This pyramid is a tool which helps make rational nutritional choices, adequate to the intensity of sports people's workout [6, 7].

Health-related behaviors of different population groups, including nutrition, are determined by a broad spectrum of socio-economic, cultural and personality factors [8]. Individual differences which contribute to a person's health culture are among others: health locus of control and the sense of general self-efficacy, dispositional optimism and life satisfaction. Previous studies have demonstrated relations between individual differences, including the sense of control and generalized efficacy, and dietary habits of people engaging in intensive physical activity, including professional sports people [9-13] and young women who engage in fitness for recreational purposes [14].

Therefore, another study was aimed at investigating the predictive role of individual qualities (dispositional optimism and the sense of satisfaction with life) with reference to sports people's nutritional choices. The work belongs to the field of research on individual determinants of eating habits of professional sports people. Dispositional optimism, as a relatively permanent personality trait, is an expression of generalized expectations of positive effects of the person's [15]. Optimism is an important individual resource stimulating motivation, endurance and determination to achieve goals. In a way, it is a regulator of health-related behaviors, including diet and physical activity, and affects the person's mental and physical well-being. Life satisfaction, as a subjective measure of well-being, is defined as general, individual, cognitive evaluation of the quality of life [16]. It is an inherently subjective concept, as it directly refers to individual evaluation of one's resources and limitations, being reflected in positive approach to one's own life situation. The sense of life satisfaction, treated as a measure of quality of life, is one of important psychosocial health resources of a person [17].

Aim

Continuing research on personal determinants of eating habits of people with increased physical activity has contributed to a study of the predictive role of certain personality dimensions regarding the dietary habits of professional athletes. The aim of the study was to analyze selected individual determinants of the diet of Polish sports people professionally playing team games in the light of current dietary recommendations for athletes. The total (interaction) impact of sex and selected psychological qualities (the levels of dispositional optimism and satisfaction with life) on the degree of observing the recommendations for sports people's rational diet was evaluated.

Material and method

The study was carried out in a group of 518 Polish athletes professionally playing team sports, including handball (n=172, including 93 women), volleyball (n=169, including 96 women), soccer (n=125, including 25 women) and basketball (n=51, including 38 women). The greatest number of them played handball (33.27%) or volleyball (32.69%), fewer trained soccer (24.18%) and basketball (9.86%). The basic criterion for the open selection of participants was playing the sports professionally for at least 3 years. The participants were highly professional sports people from 35 Polish sports clubs (from 11 voivodeships). The study group was made up of people who worked out regularly at least 5 times a week, more than an hour at a time. They were at the level of 1st or 2nd master class.

The participants were 252 women aged 19-34 (22.58±3.28) and 266 men aged 19-34 (23.72±4.02). The participants' professional sports experience was between 3 and 22 years (11.65±3.74). The highest percentage of the sports women were students (70.92%), fewer of them had higher (19.12%) and secondary (9.96%) education. As for the sports men, most of them were students, too (57.14%), whereas 21.43% had higher education, and also 21.43%, secondary.

The study involved the methods of qualitative evaluation of diet and tools connected with health promotion and psychology. The participants' diet was evaluated with an original questionnaire concerning nutritional habits, involving the basic qualitative recommendations of the Swiss food pyramid for sports people. The questionnaire included 14 sentences referring to the qualitative recommendations of the Swiss food pyramid for sports people. Regarding the responses to the statements, two options were possible: yes (1 point) and no (0 points), so the maximum score was 14 points. The higher score (in the 0-14 range), the higher observance of qualitative recommendations for sports people's proper diet. The applied original questionnaire to evaluate eating habits was validated for 23 sports people from the studied population – a re-test was performed after 6 weeks with the use of Chi^2 test by McNemar and the Fi (Phi) coefficient. The validation procedure proved high reproducibility of the results. The values of McNemar's Chi^2 test

did not show any statistically significant differences between the pre-test and re-test results for any of the statements ($p>0.05$). The Youle's Fi coefficient also exceeded 0.5 for all the statements, which meant strong positive relations between the results of pre-test and re-test.

Two standardized tests used in health promotion and psychology were also applied in the study. Dispositional optimism was measured with the Life Orientation Test-Revised (LOT-R) by M.F. Scheier, Ch.S. Carver and M.F. Bridges adapted by R. Poprawa and Z. Juczyński [16]. In the LOT-R scale made up of 10 statements (6 diagnostic ones), the higher the score (in the 0-24 range), the higher is the level of optimism. The participants were classified in groups with different optimism levels on the basis of the median of raw scores. Scores below the median mean low sense of optimism, and those above, high sense of optimism. The LOT-R scale raw scores median for the studied sports people was 16 (16.21±3.60; Min-Max: 6-24). The level of life satisfaction was measured with the Satisfaction With Life Scale (SWLS) by E. Diener, R.A. Emmons, R.J. Larsen and S. Griffin adapted by Z. Juczyński [16]. In the SWLS scale made up of 5 statements, the higher the score (in the 5-35 range), the higher is the level of satisfaction with life. The participants were classified in groups with different life satisfaction levels on the basis of the median of raw scores. SWLS scores below the median mean low sense of life satisfaction, and those above, high sense of life satisfaction. The SWLS scale raw scores median for the studied sports people was 23 (22.11±4.67; Min-Max: 10-34).

Statistical analyses were carried out using the statistical package PQStat ver. 1.6. The combined (interaction) impact of the analyzed variables (sex and the psychological characteristics) on the degree of observing each qualitative recommendation for sports people's diet was evaluated using logistic regression. The total score in the eating habits questionnaire depending on the combined (interaction) impact of the considered individual variables was analyzed with linear regression models. Test probability of $p<0.05$ was regarded as significant, and $p<0.01$, as highly significant.

Results

Out of the qualitative diet recommendations, sports people playing team games mostly observed the recommendations concerning the preference of mineral water for hydration (73.89%) as well as limiting sweets, salty snacks (74.08%) and fast food (73.89%). The lowest percentage of sports people declared daily consumption of the recommended portions of fruit and vegetables (32.88%) and whole-grain cereal products (33.85%), as well as oils and other vegetable fats (35.01%).

Regression analysis showed a highly significant relation between sex and the preference for drinking mineral water ($p<0.01$). Women preferred drinking water significantly less often than men did (OR: 0.53). The factors taken into consideration in the regression model did not show any significant relation to drinking isotonic drinks during workout (Table I).

Regression analysis showed highly significant relations between sex and the levels of optimism and life satisfaction and the consumption of fruit and vegetables ($p<0.01$). Sports people with a high sense of satisfaction with life significantly more often consumed the recommended daily portions of fruit and vegetables (OR: 1.97), and sports people with high levels of dispositional optimism ate the recommended daily amount of vegetables (at least 2 portions) significantly more often than those with low levels of optimism (OR: 1.65). Daily consumption of at least one portion of raw vegetables was significantly more often declared by women than by men (OR: 2.62). Regression analysis did not demonstrate any significant relations between the analyzed factors and the use of whole-grain cereal products in sports people's diet (Table II).

In the adopted regression mod el, no significant relations were found between the analyzed variables and the consumption of dairy products or fish. Regression analysis showed a highly significant influence of sex and optimism level on fats consumption ($p<0.01$). Women declared limiting animal fats consumption significantly more often than men (OR: 1.94). Vegetable fats were significantly more often eaten daily or almost every day by sports people with high levels of optimism than by those with low optimism levels (OR: 2.92). The other analyzed factors were not significantly related to the consumption of vegetable fats by sports people (Table III).

The participants' sex had a highly significant impact on behaviors connected with limiting sweet fizzy drinks and fast food ($p<0.01$). Women significantly more often than men declared avoiding sweet fizzy drinks (OR: 1.71) and fast food (OR: 1.90). The variables used in the regression model did not show any significant relation to sports people's eating habits connected with limiting the consumption of energy drinks or sweet and salty snacks (Table IV).

Linear regression analysis showed that out of the variables included in the discussed multi-factor model, the sense of dispositional optimism affected the total ratio of rational eating habits. Sports people with high levels of optimism had significantly higher scores, which meant higher degrees of observing the qualitative recommendations of the Swiss food pyramid for sports people ($p<0.05$) (Table V).

Table I. Relations between the analyzed factors and observing recommendations for fluid replacement in the group of sports people playing team sports
Tabela I. Zależności między analizowanymi czynnikami a realizacją zaleceń w zakresie uzupełniania płynów w grupie sportowców dyscyplin zespołowych

Variables /Zmienne		b	b error	-95% CI	+95% CI	p	OR	-95% CI	+95% CI
approx. 1 L of isotonic drink per 1h of exercise /ok. 1 L napoju izotonicznego na godzinę treningu	y-intercept	0.40	0.19	0.03	0.77	0.0365	1.49	1.03	2.16
	Sex (female)	-0.07	0.18	-0.42	0.29	0.7051	0.93	0.66	1.33
	LOT-R (high)	0.13	0.19	-0.25	0.50	0.5090	1.14	0.78	1.66
	SWLS (high)	0.12	0.20	-0.27	0.51	0.5575	1.12	0.76	1.66
mostly mineral water /preferowanie wody mineralnej	y-intercept	1.39	0.22	0.96	1.83	0.0001	4.03	2.60	6.24
	Sex (female)	-0.64	0.21	-1.04	-0.23	0.0019	0.53	0.35	0.79
	LOT-R (high)	0.03	0.22	-0.40	0.45	0.9016	1.03	0.67	1.58
	SWLS (high)	0.06	0.23	-0.38	0.50	0.7835	1.06	0.68	1.65

Table II. Relations between the analyzed factors and observing recommendations for the consumption of fruit and vegetables as well as cereal products in the group of sports people playing team sports.
Tabela II. Zależności między analizowanymi czynnikami a realizacją zaleceń w zakresie spożywania warzyw i owoców oraz produktów zbożowych w grupie sportowców dyscyplin zespołowych

Variables /Zmienne		b	b error	-95% CI	+95% CI	p	OR	-95% CI	+95% CI
3-5 portions of fruit and vegetables daily /3-5 porcji warzyw i owoców dziennie	y-intercept	-0.68	0.20	-1.07	-0.28	0.0007	0.51	0.34	0.75
	Sex (female)	0.07	0.19	-0.31	0.44	0.7290	1.07	0.73	1.55
	LOT-R (high)	-0.30	0.21	-0.71	0.10	0.1416	0.74	0.49	1.11
	SWLS (high)	0.68	0.21	0.27	1.09	0.0011	1.97	1.31	2.97
vegetables in at least 2 meals a day /warzywa przynajmniej w 2 posiłkach dziennie	y-intercept	-0.46	0.19	-0.83	-0.09	0.0161	0.63	0.43	0.92
	Sex (female)	0.02	0.18	-0.33	0.37	0.9079	1.02	0.72	1.45
	LOT-R (high)	0.50	0.19	0.12	0.88	0.0097	1.65	1.13	2.40
	SWLS (high)	-0.12	0.20	-0.51	0.26	0.5356	0.89	0.60	1.30
raw vegetables at least once a day /surowe warzywa przynajmniej raz dziennie	y-intercept	-0.54	0.19	-0.92	-0.16	0.0054	0.58	0.40	0.85
	Sex (female)	0.96	0.18	0.60	1.32	0.0001	2.62	1.83	3.76
	LOT-R (high)	0.08	0.20	-0.30	0.46	0.6841	1.08	0.74	1.59
	SWLS (high)	-0.24	0.20	-0.63	0.16	0.2397	0.79	0.53	1.17
whole-grain cereal products at least twice a day /zbożowe razowe przynajmniej 2 razy dziennie	y-intercept	-0.55	0.20	-0.93	-0.16	0.0056	0.58	0.39	0.85
	Sex (female)	0.06	0.19	-0.31	0.43	0.7346	1.07	0.74	1.54
	LOT-R (high)	0.05	0.20	-0.34	0.45	0.7867	1.06	0.71	1.57
	SWLS (high)	-0.15	0.21	-0.56	0.26	0.4623	0.86	0.57	1.29

Table III. Relations between the analyzed factors and observing recommendations for the consumption of protein products and fats in the group of sports people playing team sports
Tabela III. Zależności między analizowanymi czynnikami a realizacją zaleceń w zakresie spożywania produktów białkowych i tłuszczów w grupie sportowców dyscyplin zespołowych

Variables /Zmienne		b	b error	-95% CI	+95% CI	p	OR	-95% CI	+95% CI
dairy products twice a day /produkty mleczne 2 razy dziennie	y-intercept	-0.59	0.19	-0.97	-0.21	0.0023	0.56	0.38	0.81
	Sex (female)	0.24	0.18	-0.11	0.60	0.1834	1.27	0.89	1.81
	LOT-R (high)	0.27	0.19	-0.11	0.65	0.1595	1.31	0.90	1.92
	SWLS (high)	0.02	0.20	-0.37	0.40	0.9361	1.02	0.69	1.50
fish 1-2 times a week /ryby 1-2 razy w tygodniu	y-intercept	0.42	0.19	0.05	0.80	0.0263	1.53	1.05	2.22
	Sex (female)	-0.24	0.18	-0.59	0.11	0.1818	0.79	0.55	1.12
	LOT-R (high)	-0.28	0.19	-0.66	0.10	0.1482	0.76	0.52	1.10
	SWLS (high)	-0.21	0.20	-0.60	0.17	0.2770	0.81	0.55	1.19
limited consumption of animal fats /ograniczanie tłuszczów zwierzęcych	y-intercept	-0.34	0.19	-0.71	0.04	0.0763	0.71	0.49	1.04
	Sex (female)	0.66	0.18	0.31	1.01	0.0003	1.94	1.36	2.76
	LOT-R (high)	0.15	0.19	-0.23	0.52	0.4512	1.16	0.79	1.69
	SWLS (high)	-0.22	0.20	-0.61	0.17	0.2672	0.80	0.54	1.18
vegetable fats daily /tłuszcze roślinne codziennie	y-intercept	-1.11	0.21	-1.53	-0.70	0.0001	0.33	0.22	0.50
	Sex (female)	-0.16	0.19	-0.53	0.22	0.4111	0.85	0.59	1.24
	LOT-R (high)	1.07	0.21	0.66	1.49	0.0001	2.92	1.93	4.42
	SWLS (high)	-0.17	0.21	-0.58	0.23	0.4097	0.84	0.56	1.26

Table IV. Relations between the analyzed factors and observing recommendations for the consumption of undesirable products in the group of sports people playing team sports
Tabela IV. Zależności między analizowanymi czynnikami a realizacją zaleceń w zakresie spożywania produktów przeciwwskazanych w grupie sportowców dyscyplin zespołowych

Variables /Zmienne		b	b error	-95% CI	+95% CI	p	OR	-95% CI	+95% CI
avoiding sweet fizzy drinks /unikanie słodkich napojów gazowanych	y-intercept	-0.05	0.19	-0.42	0.32	0.8023	0.95	0.66	1.38
	Sex (female)	0.54	0.18	0.18	0.89	0.0029	1.71	1.20	2.44
	LOT-R (high)	0.13	0.19	-0.25	0.51	0.5051	1.14	0.78	1.66
	SWLS (high)	-0.39	0.20	-0.77	0.00	0.0505	0.68	0.46	1.00
avoiding energy drinks /unikanie napojów energetyzujących	y-intercept	-0.70	0.20	-1.08	-0.31	0.0004	0.50	0.34	0.73
	Sex (female)	0.26	0.18	-0.09	0.62	0.1484	1.30	0.91	1.87
	LOT-R (high)	0.21	0.20	-0.18	0.60	0.2870	1.23	0.84	1.81
	SWLS (high)	0.11	0.20	-0.28	0.51	0.5707	1.12	0.76	1.66
avoiding fast food /unikanie fast food	y-intercept	0.32	0.20	-0.08	0.72	0.1198	1.37	0.92	2.05
	Sex (female)	0.64	0.21	0.23	1.05	0.0022	1.90	1.26	2.85
	LOT-R (high)	0.37	0.22	-0.05	0.79	0.0879	1.45	0.95	2.21
	SWLS (high)	0.33	0.23	-0.13	0.78	0.1589	1.39	0.88	2.19
limiting sweets and salty snacks /ograniczanie słodyczy i słonych przekąsek	y-intercept	1.09	0.21	0.67	1.51	0.0001	2.97	1.95	4.53
	Sex (female)	0.21	0.20	-0.19	0.60	0.3119	1.23	0.82	1.83
	LOT-R (high)	-0.01	0.22	-0.43	0.42	0.9723	0.99	0.65	1.52
	SWLS (high)	-0.23	0.22	-0.66	0.20	0.3021	0.80	0.52	1.23

Table V. Relations between the analyzed factors and the total ratio of rational eating habits in the group of sports people playing team sports
Tabela V. Zależności między analizowanymi czynnikami a ogólnym wskaźnikiem racjonalnych wyborów żywieniowych w grupie sportowców dyscyplin zespołowych

Variables /Zmienne	b	b error	-95% CI	+95% CI	t	p	b error	b standard error
y-intercept	8.64	0.88	6.92	10.37	9.84	<0.0001		
Sex (female)	-0.03	0.04	-0.10	0.04	-0.73	0.4672	-0.032	0.044
LOT-R (high)	0.08	0.03	0.01	0.14	2.44	0.0152	0.121	0.049
SWLS (high)	0.39	0.27	-0.1	0.93	1.46	0.1451	0.065	0.044

Interpretation of relations in tables I-IV: the +sign next to the slope (b) and OR>1.00 mean more frequent observance of the dietary recommendation by women than by men and by people with high rather than low levels of the psychological qualities (measured by LOT-R and SWLS scales); the – sign next to the slope (b) and OR<1.00 mean less frequent observance of the dietary recommendation by women than by men and by people with high rather than low levels of the psychological qualities (measured by LOT-R and SWLS scales).

Discussion

The presented study showed differences between some nutritional choices of Polish sports people playing team games depending on sex and the analyzed individual qualities, with more rational choices displayed by women than men and by sports people with higher levels of dispositional optimism and satisfaction with life.

It was demonstrated that men significantly more often chose mineral water, and women significantly more often ate raw vegetables; besides, women limited the consumption of animal fats, fast food, and sweet fizzy drinks ($p<0.01$). The higher preference for mineral water among men had a positive correspondence to the need of proper fluid replacement due to high losses of water during soccer matches, sometimes even 3.5 liter [18]. Greater vegetable consumption on the part of women was associated with greater supply of dietary fiber, mineral salts, vitamins and other bioactive substances. It was also an element optimizing the acid-base balance in the conditions of increased physical activity. Moreover, the fact that women more often observed the recommendations concerning the limitation of animal fats, fast food and sweet drinks meant a lower supply of atherogenic saturated fatty acids and cholesterol, trans isomers of unsaturated fatty acids, and simple sugars, which have a negative effect of the lipid profile of blood [19].

The results of other studies also corresponded to the divergence of some dietary choices depending on sex, demonstrated in the original study. The authors pointed out the need to solve the problem of proper hydration of women playing soccer [18, 20], low preference for vegetables consumption among Spanish junior soccer players [21] and common differences in the amount and frequency of fruit and vegetables consumption depending on the sex of the sports people [22]. The lower level of limiting the consumption of undesirable products among men, described for the studied group of Polish sports people playing team games, including the reduction of fast food, sweet fizzy drinks and animal fats, was similar to the tendencies demonstrated in young Spanish soccer players [21], students of sports secondary schools in Warsaw [23], and teenagers in Małopolska region [24].

The presented study also showed differences between some eating habits of sports people playing team games depending on the level of dispositional optimism and satisfaction with life, with more rational choices in the group of people with high levels of these individual qualities. Sports people with high levels of dispositional optimism and satisfaction with life significantly more often consumed fruit or vegetables, and those with high levels of optimism significantly more often declared daily consumption of vegetable oils and other vegetable fats as well. These behaviors could be classified as rational dietary choices, promoting the restoration of acid-base balance, saturation of the organism with antioxidants, and optimization of the lipid profile of blood due to the functional properties of consumed nutrients [19].

The observed regularities, indicating more rational dietary models among people with a high sense of dispositional optimism and satisfaction with life can be explained with the characteristics of those two personality dimensions [15-17, 25]. High levels of dispositional optimism and satisfaction with life increase the motivation and determination to achieve goals, thus being important health resources which stimulate health-related behaviors, including rational diet [15-17, 25]. In sports people, rational diet is the key factor ensuring the maintenance of health and optimizing the effects of workout [7]. The tendencies described in the original study also refer to the findings of other studies, both from Poland and from other countries, carried out in different population groups [26-35]. A study by Lipowski [29] showed a positive correlation between the optimism level and some health-related behaviors in the group of women engaging in sports. A study by Posadzki, et al. [32] showed a significant positive impact of positively correlated psychological variables, including the sense of self-efficacy, optimism and the sense of coherence, on health-related behaviors of Polish students representing different educational profiles. More rational dietary choices related to higher optimism levels were also observed among young adults in Finland [28]. Results indicating the increase of rational dietary choices along with the increase of self-efficacy, positively correlated with the level of optimism, were also obtained in the group of professional sports people [11, 12], female students from Krakow engaging in fitness for recreational purposes [14] and perimenopausal women [26, 27]. The regression analysis performed as part of the presented original study confirmed the significant predictive meaning of the dispositional optimism level for the total ratio of rational dietary habits of sports people playing team sports. Due to the positive correlation between the level of optimism and self-efficacy, this regularity is similar to the results obtained by Zalewska-Puchała, et al. [36], confirming the high influence of the sense of self-efficacy in maintaining health, actually higher than the influence of other variables. Test results of the original research indicating more frequent rational dietary choices in sports people with high levels of satisfaction with life also correspond to the results of studies concerning perimenopausal women [26, 27]. A study focusing on female teachers from Poland showed that the level of life satisfaction was related to lower BMI values and healthier diet [30]. The relation between life satisfaction and certain health determinants, including dietary ones, has also been confirmed by studies carried out in Chile [33-35] and Iran [31]. The Iranian study showed a positive correlation between the level of satisfaction with life and the number of meals and regular breakfasts and the frequency of eating fruit and vegetables among medicine students [31].

The high level of optimism and sense of satisfaction with life are important health resources of a person, promoting active care for health, including more rational eating habits.

Conclusion

1. The study showed some differences between certain eating habits of Polish sports people playing team games depending on the sex, with greater observance of dietary recommendations for that group of people displayed by women than by men.
2. The study showed some differences between certain eating habits of Polish athletes playing team games depending on the level of dispositional optimism and satisfaction with life, with greater observance of dietary recommendations for that group of people displayed by those who represented higher levels of the analyzed individual qualities.

3. A significant relation was found between the level of dispositional optimism and the total ratio of rational dietary habits, confirming the significant predictive role of this personality dimension for the formation of the diet model of Polish sports people playing team games.
4. The rationalization of diet of Polish sports people playing team games should involve, not only sex, but also psychological qualities, including the level of dispositional optimism and satisfaction with life.

Źródło finansowania: Praca nie jest finansowana z żadnego źródła.

Konflikt interesów: Autorzy deklarują brak konfliktu interesów.

Piśmiennictwo / References

1. Rodriguez NR, Di Marco NM, Langley S. Position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: nutrition and athletic performance. J Am Diet Assoc 2009, 109(3): 509-527.
2. Potgieter S. Sport nutrition: A review of the latest guidelines for exercise and sport nutrition from the American College of Sport Nutrition, the International Olympic Committee and the International Society for Sports Nutrition. S Afr J Clin Nutr 2013, 26(1): 6-16.
3. Ormsbee MJ, Bach CW, Baur DA. Pre-exercise nutrition: the role of macronutrients, modified starches and supplements on metabolism and endurance performance. Nutrients 2014, 6(5): 1782-1808.
4. Thomas DT, Erdman KA, Burke LM. Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: nutrition and athletic performance. J Acad Nutr Diet 2016, 116(3): 501-528.
5. Walter P, Infanger E, Mühlemann P. Food Pyramid of the Swiss Society for Nutrition. Ann Nutr Metab 2007; 51(suppl 2): 15-20.
6. Burke LM. A food pyramid for Swiss athletes. Int J Sport Nutr Exerc Metab 2008, 18(4): 430-437.
7. Mettler S, Mannhart C, Colombani PC. Development and validation of a food pyramid for Swiss athletes. Int J Sport Nutr Exerc Metab 2009, 19(5): 504-518.
8. Remick AK, Polivy J, Pliner P. Internal and external moderators of the effect of variety on food intake. Psychol Bull 2009, 135(3): 434-451.
9. Gacek M. Locus of control and dietary behaviour in a group of professional team sports athletes. Med Sport 2013, 29(2): 111-117.
10. Gacek M. Spożycie napojów w grupie juniorów młodszych trenujących piłkę nożną – niektóre uwarunkowania osobnicze. Probl Hig Epidemiol 2013, 94(2): 286-290.
11. Gacek M, Frączek B. Nutritional evaluation of junior football players depending on the global level of self-efficacy of the athletes. Med Sportiv 2013, 17(2): 72-75.
12. Gacek M. Association between self-efficacy and dietary behaviors of American football players in the Polish clubs in the light of dietary recommendations for athletes. Rocz PZH 2015, 66(4): 361-366.
13. Gacek M. Association between general self-efficacy level and use of dietary supplements in the group of American football players. Rocz PZH 2016, 67(1): 31-36.
14. Gacek M, Frączek B, Morawska M. Self-efficacy as a predictor of dietary choices in a group of young women practicing fitness on a recreational basis. Polish J Sport Med 2015, 2(4(31)): 61-68.
15. Carver CS, Scheier MF, Segerstrom SC. Optimism. Clin Psychol Rev 2010, 30(7): 879-889.
16. Juczyński Z. Narzędzia pomiaru w psychologii i promocji zdrowia. Pracownia Testów Psychologicznych, Warszawa 2012.
17. Trzebiatowski J. Jakość życia w perspektywie nauk społecznych i medycznych – systematyzacja ujęć definicyjnych. Hygeia Public Health 2011, 46(1): 25-31.
18. Coyle EF. Fluid and fuel intake during exercise. J Sports Sci 2004; 22(1): 39-55.
19. Kłosiewicz-Latoszek L. Zalecenia żywieniowe w prewencji chorób przewlekłych. Probl Hig Epidemiol 2009, 90(4): 447-450.
20. Maughan RJ, Shirreffs SM. Nutrition and hydration concerns of the female football player. Br J Sports Med 2007, 41(suppl 1): i60-i63.
21. Iglesias-Gutiérrez E, García-Rovés PM, García A, et al. Food preferences do not influence adolescent high-level athletes' dietary intake. Appetite 2008, 50(2-3): 536-543.
22. Emanuel AS, McCully SN, Gallagher KM, Updegraff JA. Theory of planned behavior explains gender difference in fruit and vegetable consumption. Appetite 2012, 59(3): 693-697.
23. Łagowska K, Woźniewicz M, Jeszka J. Porównanie nawyków żywieniowych młodzieży z uwzględnieniem płci oraz poziomu aktywności fizycznej. Rocz PZH 2011, 62(3): 335-342.
24. Gacek M. Dietary habits and locus of control assessed in middle-school pupils from the Malopolska region of Poland. Rocz PZH 2013, 64(2): 129-134.
25. Potempa K. Optymizm a zdrowie. Med Og Nauk Zdr 2013, 19(2): 130-134.
26. Gacek M. Selected individual differences as predictors of milk product consumption in a group of perimenopausal women in the light of health hazards. Menopause Rev 2013, 12(4): 300-306.
27. Gacek M. Selected individual determinants of cereal, fruit and vegetable consumption among menopausal women in view of potential health risks. Menopause Rev 2013, 12(5): 385-391.
28. Kelloniemi H, Ek E, Laitinen J. Optimism, dietary habits, body mass index and smoking among young Finnish adults. Appetite 2005, 45(2): 169-176.
29. Lipowski M. Level of optimism and health behavior in athletes. Med Sci Monit 2012, 18(1): CR39-CR43.

30. Laudańska-Krzemińska I, Wierzejska E, Jóźwiak P, Klimas N. Zachowania zdrowotne nauczycieli Wielkopolski – poszukiwanie mocnych i słabych stron. [w:] Aktywność fizyczna i żywienie w trosce o zdrowie i jakość życia. Stemplewski R, Szeklicki R, Maciszek J (red). Bogucki Wydawnictwo Naukowe, Poznań 2015: 243-252.
31. Lesani A, Mohammadpoorasl A, Javadi M, et al. Eating breakfast, fruit and vegetable intake and their relation with happiness in college students. Eat Weight Disord 2016, 21(4): 645-651.
32. Posadzki P, Stockl A, Musonda P, Tsouroufli M. A mixed-method approach to sense of coherence, health behaviors, self-efficacy and optimism: towards the operationalization of positive health attitudes. Scand J Psychol 2010, 51(3): 246-252.
33. Schnettler Morales B, Denegri Coria M, Miranda Vargas H, et al. Satisfaction with life and with food-related life in central Chile. Psicothema 2014, 26(2): 200-206.
34. Schnettler B, Lobos G, Orellana L, et al. Analyzing Food-Related Life Satisfaction and other Predictors of Life Satisfaction in Central Chile. Span J Psychol 2015, 18: E38.
35. Schnettler B, Miranda H, Lobos G, et al. Eating habits and subjective well-being. A typology of students in Chilean state universities. Appetite 2015, 89: 203-214.
36. Zalewska-Puchała J, Majda A, Gałuszka A, Kolonko J. Health behaviour of students versus a sense of self-efficacy. Adv Med Sci 2007, 52(suppl. 1): 73-77.