

2016

Dependence between body image and motivation in a group of professional swimmers and track-athletes

Aleksandra Budzisz

The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland, Aleksandra@budzisz.com

Monika Nawrocka

The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland

Follow this and additional works at: <https://dcgdansk.bepress.com/journal>



Part of the [Health and Physical Education Commons](#), [Sports Medicine Commons](#), [Sports Sciences Commons](#), and the [Sports Studies Commons](#)

Recommended Citation

Budzisz A, Nawrocka M. Dependence between body image and motivation in a group of professional swimmers and track-athletes. *Balt J Health Phys Act.* 2016; 8(2): 55-63. doi: 10.29359/BJHPA.08.2.05

This Article is brought to you for free and open access by Baltic Journal of Health and Physical Activity. It has been accepted for inclusion in Baltic Journal of Health and Physical Activity by an authorized editor of Baltic Journal of Health and Physical Activity.

Dependence between body image and motivation in a group of professional swimmers and track-athletes

Authors' Contribution:

- A Study Design
- B Data Collection
- C Statistical Analysis
- D Data Interpretation
- E Manuscript Preparation
- F Literature Search
- G Funds Collection

Aleksandra Budzisz^{ABDFG}, Monika Nawrocka^{CE}

The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland

abstract

- Background** The human body may be investigated on a variety of levels. This paper deals with the issue of self-perception of the body by sportsmen and motivation strategies they use. The aim of the study was twofold: firstly, to determine whether the sports discipline affects satisfaction with one's own body and the level of motivation; and secondly, to establish if the type of sports motivation is dependent on the body image.
- Material/Methods** The subject group comprised athletes (n = 42) and swimmers (n = 35). The subjects completed questionnaires. The research tools included the Body Esteem Scale (BES) by Franzoi & Shields and the Sport Orientation Questionnaire (SOQ) by Gill and Dieter.
- Results** The results were analysed separately for each gender (according to the applied tool (BES)). Significant differences in self-perception of the body occurred in males in terms of the sports discipline, and the athletes perceived themselves better (Physical attractiveness [p < 0.01; F(8,33)] Body strength [p < 0.05; F(4,17)] Physical condition [p < 0.02; F(5,63)]). The differences did not occur in the female group. The same applies to the whole study group in terms of the level of motivation. Regression analysis demonstrated that the body image was a significantly independent variable in the case of motivation focused on the aim (females [the sexual attractiveness subscale] $\beta = 0.46$; males [the physical condition subscale] $\beta = 0.35$).
- Conclusions** In terms of the sports discipline, there are significant differences in satisfaction with the body; however, they occur only among males. The subject athletes expressed greater satisfaction with their bodies. The body image, perceived among female subjects as an object (also sexual), affects the level of sports motivation focused on the aim. For males, the aspect of body capability, i.e. physical condition, is the factor responsible for an increase in the motivation focused on the aim.
- Key words** body image, body esteem, sport, motivation, aim, winning

article details

- Article statistics** **Word count:** 3,103; **Tables:** 7; **Figures:** 0; **References:** 33
Received: December 2015; **Accepted:** March 2016; **Published:** June 2016
<http://www.balticsportscience.com>
- Full-text PDF:** <http://www.balticsportscience.com>
- Copyright** © Gdansk University of Physical Education and Sport, Poland
- Indexation:** AGRO, Celdes, CNKI Scholar (China National Knowledge Infrastructure), CNPIEC, De Gruyter - IBR (International Bibliography of Reviews of Scholarly Literature in the Humanities and Social Sciences), De Gruyter - IBZ (International Bibliography of Periodical Literature in the Humanities and Social Sciences), DOAJ, EBSCO - Central & Eastern European Academic Source, EBSCO - SPORTDiscus, EBSCO Discovery Service, Google Scholar, Index Copernicus, J-Gate, Naviga (Softweco, Primo Central (ExLibris), ProQuest - Family Health, ProQuest - Health & Medical Complete, ProQuest - Illustrata: Health Sciences, ProQuest - Nursing & Allied Health Source, Summon (Serials Solutions/ProQuest, TDOne (TDNet), Ulrich's Periodicals Directory/ulrichsweb, WorldCat (OCLC)
- Funding:** This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.
- Conflict of interest:** Authors have declared that no competing interest exists.
- Corresponding author:** Aleksandra Budzisz e-mail: Aleksandra@budzisz.com
- Open Access License:** This is an open access article distributed under the terms of the Creative Commons Attribution-Non-commercial 4.0 International (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits use, distribution, and reproduction in any medium, provided the original work is properly cited, the use is non-commercial and is otherwise in compliance with the license.

INTRODUCTION

The human body may be investigated on a variety of levels. This paper deals with the issue of self-perception of the body by sportsmen and motivation strategies they use. One of the first and crucial distinctions concerning physicality is related to one's biological sex - it determines the main areas of life. The sex physicality differentiates two genders from each other, but a detailed analysis of this aspect demonstrates more sources of differences. The physicality expressed in the most external form - the skin - allows individual identification and acquisition of the ability to differentiate oneself from other people. The ability to establish the boundary of one's own body is possible as a result of feeling and identifying dermal stimuli that are the main cognitive factor during childhood [1]. The physical body performs numerous functions for each human. It serves as a physical representation that one demonstrates to other people, and, simultaneously, it is a means of realisation of mental aims. The individual physicality has its mental image that is based on experiences, emotions, convictions and behaviour. Individual self-perception may be described as body image defined as a mental image of the body or, in other words, "mental representation of corporality that not only is influenced by emotions but also actively affects one's behaviour and self-esteem and frequently leads to psychopathology" [2].

The perception of own corporality is influenced not only by conscious convictions but also by cultural messages in mass media. The influence of media coverage may cause an increase in dissatisfaction (also among sportsmen); however, the level of internalisation of the patterns may be different due to various factors [3]. Patterns acquired in childhood are a source of convictions about the ideal self-image that should be realised during life through perfecting own body. Observation and imitation of "idols" are the way to recognise these convictions. Youth idols are dependent to a great extent on the gender - for boys these are sportsmen (the emphasis is put on physical activity and exercise) and for girls - actresses and singers (physical appearance is the emphasised criterion) [4]. The media coverage and manner of its acquisition in own life are not equal for the entire population (however, persons that follow cultural patterns express greater satisfaction with themselves) [5]. Individual differences depend on early experiences where, beside the cultural patterns, the relations with close family and friends (usually parents) that determine satisfaction with own body seems to be a more significant factor [6]. Creation of a positive body image is crucial to proper development [7] that may counteract its disorders occurring in form of eating disorders (also among sportsmen) [8]. Differences in one's own body image often concern diversity in terms of gender, and females rate themselves lower than males [9]. Age [10], sports discipline [11] and training frequency [12] are also dependent variables.

The second issue of this paper is the motivation seen as internal and completely conscious desire to act and behave in a manner that allows achieving specific aims. The distinction concerning the qualitative and the quantitative motivation (both internal and external) is the basis of deliberation on motivation [13]. Delving into the matter of motivation, its various types can be discussed, e.g. within performed work [14]. Research concerning sports motivation was undertaken, among others, by Hanrahan. He examined factors determining success and there by the type of motivation responsible for improvement in sports results [15]. Comparisons of available research tools are performed in

the literature because of the diverse theories on various types of sports motivation [16]. A coach's attitude and his motivational methods are significant motivational factors in the case of sports results [17]. However, the coach's motivation is not the only source of affecting sportsmen's eagerness [18]. The internal motivation invariably remains the strongest determinant of participation and consistency with regard to physical activity [19].

The manner of self-perception through the prism of the body determines various aspects of life; among others, it conditions the manner of commitment and motivation to take action. This paper investigates and describes the link between the body image and motivation among professional sportsmen.

The aim of the study was twofold: evaluative and explanatory. The evaluation concerned determining whether differences in assessment of one's own body due to the sports discipline occur. The explanatory aspect concerns the issue whether the specific type of sports motivation depends on the body image.

MATERIAL AND METHOD

The study was conducted in the Central Sports Centre in Zakopane in 2014. The subject group consisted of 77 professional sports persons (39 females – 51% and 38 males – 49%), of whom 42 were athletes (55%) and 35 swimmers (45%). The mean age of the subject group was 20; for the swimmers it was 18, while for the athletes it was 23. The subjects also had a diverse length of training experience – for the swimmers it was 10 years while for the athletes it was 8 years. The number of the sportspersons according to sports class is presented below in a tabular form (Table 1).

Table 1. The subject group by the sports class, the sports discipline and the gender

	SUBJECTS N [%]	ATHL N [%]	SWIM N [%]	F N [%]	M N [%]
MM	18 [23%]	13 [17%]	5 [6%]	6 [8%]	12 [16%]
M	17 [22%]	14 [18%]	3 [4%]	13 [17%]	4 [5%]
I	28 [36%]	12 [15%]	16 [21%]	13 [17%]	15 [19%]
II	14 [18%]	3 [4%]	11 [14%]	7 [9%]	7 [9%]

ATHL - Athlete respondents, SWIM - Swimmer respondents, F - Females, M - Males

MM - international master sport class [the highest], M - national master sport class, I - the first sport class, II - the second sport class

The subjects completed a questionnaire (voluntarily and completely anonymously) which consisted of two scales: the Body Esteem Scale by Franzoi and Shields [20, 21, 22] and the sports motivation questionnaire by Gill and Dieter [23].

The Body Esteem Scale comprises 35 items corresponding to the aspects connected with the body. The items of the scale are divided into subscales separate for each gender. Females rated sexual attractiveness that concerns personal feelings with respect to body parts that are non-modifiable through physical activity; however, an attitude toward them as elements of the appearance concerns sexuality: nose, lips, ears, chin, breast, appearance of eyes, cheeks, face, sex drive, sex organs, sex activities, body hair, body scent. Weight

control (females), i.e. aspects which can be modified by activity or diet. This subscale is comprised of: appetite, waist, thighs, body build, buttocks, hips, legs, figure, appearance of the abdomen, weight. Physical condition (females) concerns parameters resulting from physical activity such as: physical stamina, reflexes, muscular strength, energy level, biceps, physical coordination, agility, health, physical condition. In this questionnaire, males rated their own physical attractiveness, which consists of items responsible for being handsome (sexuality of the image is not as significant for males, as it is for females). This subscale is comprised of: chin, buttocks, appearance of eyes, cheeks, hips, sex organs, face, lips, ears, nose, and feet. Body strength (males) describes both elements of the upper body part and functions that allow acting effectively: body build, width of shoulders, arms, chest, sex drive, physical coordination, figure, muscular strength, and biceps. For males, physical condition corresponds to physical activity, assessment of strength and agility, namely: weight, physical coordination, appetite, physical stamina, waist, agility, health, physical condition, energy level, appearance of the abdomen. Items of the Body Esteem Scale questionnaire were rated with 5-grade Likert scale from 1 (have strong negative feelings) to 5 (have strong positive feelings).

The sports motivation questionnaire describing motivation focused on winning or the aim [24] was the second research tool. Motivation to win concerns a desire to beat competition and is based on the ego. Statements relating to this subscale are following: 1. Only winning counts, 2. It is very important to me to achieve a better result than my rival, 3. I hate losing, 4. I feel satisfaction only when I win, 5. I am angry when I lose, 6. Only the victory pleases me. Motivation focused on the aim concerns the need of achieving personal aims in the sport. Statements concerning this motivation are following: 1. When I participate in competitions, I set out personal aims, 2. The best competitions for me are those where I achieve the aims I set out for myself, 3. I do my best whenever I have a specific aim to achieve, 4. It is really important to me to do my best, 5. Perfecting my skills is really important to me, 6. The best way to prove myself is to achieve aims that I set out. Assessment of the statements from the questionnaire was represented by 5-grade Likert scale from 1 (strongly disagree) to 5 (strongly agree).

RESULTS

Internal consistency analysis of the reliability of the two research tools was performed, calculating Cronbach's alpha, assuming in accordance with Sokółowski and Sagan [25] that the value of alpha higher than 0.60 constitutes satisfactory reliability. Cronbach's alpha values ranged from 0.67 for the female body image subscales to 0.87 for the male body image subscales. Cronbach's alpha value for the motivation questionnaire was 0.62. The value of symmetry and concentration ranged from -1.28 to +0.70. The variables skewness value ranged from -1.28 for body strength (males) to +0.70 for the motivation to win (males). Kurtosis value was the highest for the physical condition variable (male) and the lowest -0.65 in the case of the motivation focused on the aim (females). Parametrical statistics were applied to statistical analyses because the variables distribution was similar to normal and the variances of all the variables were homogenous. The following statistical analyses were performed: ANOVA, Pearson's correlation, and multiple regression. The calculations were performed in Statistica 12 (Statsoft) program.

Basic statistics describing mean values, standard deviation and the differences between the groups of the athletes and the swimmers are presented in the Tables 2 and 3.

Table 2. Differences in terms of the sports discipline in females

F - Discipline	Total			Athl			Swim			Anova	
	N	M	SD	N	M	SD	N	M	SD	F	P
MOTIVATION											
Aim	39	4.23	0.45	22	4.30	0.41	17	4.14	0.50	1.29	<0.26
Winning	39	3.05	0.79	22	3.23	0.92	17	2.82	0.53	2.62	<0.11
BODY IMAGE											
Sex_attr	39	3.58	0.47	22	3.64	0.45	17	3.49	0.51	0.92	<0.34
W_contr	39	3.43	0.65	22	3.39	0.66	17	3.48	0.67	0.16	<0.69
Ph_condit	39	3.88	0.59	22	4.01	0.48	17	3.71	0.68	2.69	<0.11

ATHL - Athlete respondents, SWIM - Swimmer respondents,
 Subscales of Body Esteem Scale for females:
 Sex_attr - Sexual attractiveness, W_contr - Weight control, Ph_condit - Physical condition

The subject sportspersons present a rather positive attitude towards their own bodies; however, there are differences in terms of the sports disciplines. As can be seen (Table 2), no tendencies differentiating the sports disciplines appeared in the group of females. Attitudes towards motivation and one's own body perception are similar in both groups.

Table 3. Differences in terms of the sports discipline in males

M - discipline	Total			Athl			Swim			Anova	
	N	M	SD	N	M	SD	N	M	SD	F	P
MOTIVATION											
Aim	38	4.33	0.37	20	4.38	0.36	18	4.27	0.39	0.90	<0.35
Winning	38	3.34	0.64	20	3.43	0.60	18	3.24	0.69	0.85	<0.36
BODY IMAGE											
Ph_attr	38	3.88	0.69	20	4.15	0.67	18	3.57	0.58	8.33	<0.01
B_streng	38	4.18	0.54	20	4.34	0.39	18	4.00	0.63	4.17	<0.05
Ph_condit	38	4.11	0.55	20	4.30	0.44	18	3.90	0.59	5.63	<0.02

ATHL - Athlete respondents, SWIM - Swimmer respondents,
 Subscales of Body Esteem Scale for males:
 Ph_attr - Physical attractiveness, B_streng - Body strength, Ph_condit - Physical condition

The presented data demonstrate a higher concentration of the attitude towards the body in the athletes' group. In the swimmers' group, the ratings concerning physicality are significantly lower (Table 3). The level of motivation did not vary between the groups.

The correlation power of significant links between variables of motivation and the body image ranged from average to high. In both genders, the links occurred only in terms of the body image and the motivation focused on the aim.

Table 4. Correlations motivation - body image in females

Females		Motivation Winning					Females		Motivation Aim ***				
		r(x,y)	r2	t	p	N			r(x,y)	r2	T	p	N
Body image	Sex_attr	0.30	0.09	1.93	<0.06	39	Body image	Sex_attr ***	0.50	0.25	3.53	<0.01***	39
	W_contr	0.22	0.05	1.37	<0.18	39		W_contr*	0.35	0.12	2.28	<0.03**	39
	Ph_condit	0.02	0.00	0.14	<0.89	39		Ph_condit	0.15	0.02	0.93	<0.36	39

*** - the highest statistical significance (<0.01), ** - statistical significance (<0.03),
 * - statistical significance (<0.05)
 Subscales of Body Esteem Scale for females:
 Sex_attr - Sexual attractiveness, W_contr - Weight control, Ph_condit - Physical condition

The value of significant correlations in the female group between the motivation focused on the aim and the body image occurs as high correlation power for sexual attractiveness (r = 0.50). The determination coefficient r2 indicates the variability of the motivation focused on the aim is determined in 25% by Sexual Attractiveness and in 12% by Weight Control.

Table 5. Correlations motivation - body image in males

Males		Motivation Winning					Males		Motivation Aim **				
		r(x,y)	r2	t	p	N			r(x,y)	r2	t	p	N
Body image	Ph_attr	0.01	0.00	0.07	<0.95	38	Body image	Ph_attr	0.16	0.03	0.97	<0.34	38
	B_streng	0.02	0.00	0.12	<0.91	38		B_streng	0.31	0.09	1.94	<0.06	38
	Ph_condit	0.15	0.02	0.93	<0.36	38		Ph_condit**	0.35	0.12	2.23	<0.03**	38

*** - the highest statistical significance (<0.01), ** - statistical significance (<0.03),
 * - statistical significance (<0.05)
 Subscales of Body Esteem Scale for males:
 Ph_attr - Physical attractiveness, B_streng - Body strength, Ph_condit - Physical condition

In the male group, significant correlations (Table 5) concern links between motivation focused on the aim and the body image as the average correlation power (r=0.35). The determination coefficient indicates the variability of the motivation focused on the aim is determined in 12% by Physical Condition.

In the case of males one type of motivation occurred to be statistically significant explaining from 12% variability of the motivation focused on the aim [internal]. Physical condition is a significant predictor of the motivation focused on the aim. The more positive perception of sexual attractiveness, resulted in the higher value of the specific type of the motivation. This influence and the entire model are statistically significant. The results of regression in the male group are presented in Table 6.

Table 6. Analysis of multiple regression for sports motivation, predictor - body image [males]

Males	Motivation Winning			Motivation Aim		
	R = 0.24, R ² = 0.05, F _(3,34) = 0.71, p < 0.55			R = 0.34, R ² = 0.12, F _(1,36) = 4.96, p < 0.03**		
	B	t ₍₃₆₎	p	β	t ₍₃₆₎	p
Ph_attr	-0.08	-0.32	<0.75	-0.15	-0.69	<0.5
B_streng	-0.27	-0.89	<0.38	0.14	0.49	<0.63
Ph_condit	0.43	1.46	<0.15	0.35	2.23	<0.03**

*** - the highest statistical significance (<0.01), ** - statistical significance (<0.03),

* - statistical significance (<0.05)

Subscales of Body Esteem Scale for males:

Ph_attr - Physical attractiveness, B_streng - Body strength, Ph_condit - Physical condition

In the case of females one type of motivation occurred to be statistically significant explaining 27% variability of the motivation focused on the aim [internal]. Sexual attractiveness is a significant predictor of the motivation focused on the aim. The more positive perception of sexual attractiveness, the higher is the value of the specific type of the motivation. This influence and the entire model are statistically significant. The results of regression in the female group are presented in Table 7.

Table 7. Analysis of multiple regression for sports motivation, predictor - body image [females]

Females	Motivation Winning			Motivation Aim		
	R = 0.33, R ² = 0.11, F _(3,35) = 1.49, p < 0.23			R = 0.52, R ² = 0.27, F _(3,35) = 4.38, p < 0.01***		
	B	t ₍₃₅₎	p	B	t ₍₃₅₎	p
Sex_attr	0.30	1.57	<0.13	0.46	0.17	<0.01**
W_contr	0.12	0.66	<0.51	0.16	0.93	<0.36
Ph_condit	-0.14	-0.80	<0.43	-0.09	0.16	<0.5

*** - the highest statistical significance (<0.01), ** - statistical significance (<0.03),

* - statistical significance (<0.05)

Subscales of Body Esteem Scale for females:

Sex_attr - Sexual attractiveness, W_contr - Weight control, Ph_condit - Physical condition

DISCUSSION

The presented data from the author's own research indicates that the perspective of professional sport with reference to the body image significantly affects motivation focused on the aim (both in females and males).

The existing research on the body image to a great extent is based on the gender distinction, which concerns the different view on their own physicality by females and males [4, 9, 26, 27]. This distinction is greatly related to the self-objectification theory [28, 29] that assumes the female body becomes an object that is observed, assessed and monitored. Adoption of an external observer perspective towards themselves by females becomes a reason for growing affective experiences - the increase in felt shame and anxiety. Therefore, the experience of such emotions growing determines possible performance concerning motivation. What seems important, in the context of available knowledge and conducted research, is the confirmation of the function that affects motivation (internal - focused on the aim) through sexual attractiveness. Therefore, in accordance with the self-objectification theory, the higher the body is

rated as an object, the higher the values of internal motivation are. The theory assumes the male assessment of own body appears to be more positive, the more it concerns body capabilities. Physical activity is an opportunity to change the body image from the object to the function [30]. As it was presented in this research, physical condition is the determinant of the increase in the motivation level in males. These results are explained by the perception of the body as the process and the function based on capabilities [31].

The existing research on motivation in sport presents that the level of sports achievements does not significantly affect motivation or the level of anxiety [32], but the links in terms of sports motivation and the body image have not been researched in the literature yet.

CONCLUSIONS

The conducted research has certain limitations that concern various aspects, one of which is the age. The athletes' average age was 23, and the swimmers' average age was 18. The latter had just entered the transitional period between adolescence and adulthood, beginning the age of the greatest satisfaction with own body [33]. Possibly, this factor might have determined a significantly lower level of satisfaction with own body in the swimmers in comparison to the athletes.

Summing up, the results of this research confirm the significance of one's own body image as the factor superior to other psychological characteristics – including internal sports motivation. Thus one may suggest that not only the success and achievement of the set aims but also the work on more positive self-perception are the actions that can improve internal sports motivation.

REFERENCES

- [1] Robak A. Rozwojowe aspekty doświadczania ciała w okresie dzieciństwa [Developmental aspects of experiencing the body during childhood]. In: Ziółkowska B, Cwojdzńska A, Chołody M, eds. Ciała w kulturze i nauce [Body in culture and science]. Warsaw: Wydawnictwo Naukowe Scholar; 2009, 9-16. Polish.
- [2] Głębocka A. Niezadowolenie z wyglądu a rozpaczliwa kontrola wagi [Appearance dissatisfaction in relations to desperate weight control]. Kraków: Wydawnictwo Impuls; 2010. Polish.
- [3] Swami V, Steadman L, Tove M. A comparison of body size ideals, body dissatisfaction, and media influence between female track athletes, martial artists, and non-athletes. *Psychol Sport Exerc*. 2009;10:609-614.
- [4] Tatagelo G, Ricciardelli L. A qualitative study of preadolescent boys' and girls' body image: Gendered ideals and sociocultural influences. *Body Image*. 2013;10:591-598.
- [5] Henderson-King E, Henderson-King D. Media effects on women's body esteem: Social and individual difference factors. *Int J Sport Med*. 2007;28(4):340-345.
- [6] Kobierecka A. Emocjonalny aspekt obrazu ciała a ocena relacji z rodzicami u młodych kobiet [Emotional aspect of body image in relation to the assessment of relationships with parents in young women]. *Przegląd Psychologiczny*. 2012;55(4):383-395. Polish.
- [7] Carraca E. et al. Dysfunctional body investment vs body dissatisfaction: Relations with well-being and controlled motivations for obesity treatment. *Motiv Emot*. 2011;35:423-434.
- [8] Raczyńska B. Zaburzenia żywieniowe u zawodniczek [Eating disorders in female competitors]. *Sport Wyczynowy*. 2001;5-6:41-48. Polish.
- [9] Zarek A. Porównanie subiektywnej oceny ciała mężczyzn i kobiet w wieku 19-25 lat [Comparison of subjective body esteem of men and women in age of 19-25]. *Roczniki Pomorskiej Akademii Medycznej w Szczecinie*. 2007;53(3):26-33. Polish.
- [10] Sudani A, Budzyńska K, Sileńska A. Obraz ciała a aktywność fizyczna uczniów i studentów [Body image in relations to physical activity of schoolchildren and college students]. *Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu*. 2015;48:151-155. Polish.
- [11] Dinucci J, Finkenberg M, McCune S, Donice E, Mayo T. Analysis of body esteem of female collegiate athletes. *Percept Motor Skill*. 1994;78:315-319.

- [12] Homan K, Tylka T. Appearance-based exercise motivation moderates the relationship between exercise frequency and positive body image. *Body Image*. 2014;11(2):101-108.
- [13] Fortier M, et al. A moderated mediation of motivation on physical activity in the context of the physical activity counselling randomized control trial. *Psychol Sport Exerc*. 2011;12:71-78.
- [14] Moran C, Diefendorff J, Kim T, Liu Z. A profile approach to self-determination theory motivations at work. *J Vocation Behav*. 2012;81:354-363.
- [15] Hanrahan S, Cerin E. Gender, level of participation, and type of sport: Differences in achievement goal orientation and attributional style. *J Sci Med Sport*. 2009;12:508-512.
- [16] Londsdales C, Hodge K, Hargreaves E. Comparing sport motivation scales: A response to Pelletier et al. *Psychol Sport Exerc*. 2014;15:446-452.
- [17] Gillet N, Vallerand R, Amoura S, Baldes B. Influence of coaches' autonomy support on athletes' motivation and sport performance: A test of the hierarchical model of intrinsic and extrinsic motivation. *Psychol Sport Exerc*. 2010;11:155-161.
- [18] Ryba B. Motywacja działań różnych grup środowiska sportowego [Motivation of activities among different groups of sports community]. *Sport Wyczynowy*. 2001;9-10:62-69. Polish.
- [19] Homan K, Tylka T. Appearance-based exercise motivation moderates the relationship. *Body Image*. 2014;11:101-108.
- [20] Franzoi S, Shields S. The Body Esteem Scale: multidimensional structure and sex differences in a college population. *J Personal Assess*. 1984;48(2):173-178.
- [21] Franzoi S, Herzog E. The Body Esteem Scale: A convergent and discriminant validity study. *J Personal Assess*. 1986;50(1):24-31.
- [22] Lipowska M, Lipowski M. Polish normalization of the Body Esteem Scale. *Health Psychology Report*. 2013;1:72-81. Polish.
- [23] Gill D, Deeter T. Development of the Sport orientation questionnaire. *Research quarterly for exercise and sport*. 1988;59(3):191-202.
- [24] Gill D, Deeter T, Dzewaltowski D. The relationship of competitiveness and achievement orientation to participation in sport and non-sport activities. *J Sport Exerc Psychol*. 1988;10:139-150.
- [25] Sokolowski A, Sagan A. Analysis of data in marketing and public opinion research. In: *Examples of statistical inference with the use of Statistica*. Warszawa: Statsoft; 1999, 8-12.
- [26] Wheeler D, Vassar M, Halle W. A gender-based measurement in variance study of the sociocultural attitudes toward appearance questionnaire-3. *Body Image*. 2011;8:168-172
- [27] McKinley N. Gender differences in undergraduates' body esteem: the mediating effect of objectified body consciousness and actual/ideal weight discrepancy. *Sex Roles*. 1998;39(1-2):113-115.
- [28] Fredrickson B, Robert T. Objectification theory - toward understanding women's lived experiences and mental health risks. *Psychol Women Q*. 1997;21:173-206
- [29] Miner-Rubino K, Twenge J, Fredrickson B. Trait self-objectification in women: Affective and personality correlates. *J Res Personal*. 2002;36:147-172
- [30] Wasylkiw L, Emms A, Meuse R, Poirier K. Are all models created equal? A content analysis of women in advertisements of fitness versus fashion magazines? *Body Image*. 2009;6:137-140.
- [31] Lipowska M, Lipowski M. Poziom narcyzmu jako moderator relacji pomiędzy obiektywnymi wymiarami ciała a stosunkiem do własnej cielesności młodych mężczyzn [Narcissism level as the modifier of relations between objective body size and attitude towards own corporality in young males]. *Polskie Forum Psychologiczne*. 2015;20/1:31-46. Polish.
- [32] Bukowska K, Marks M. Lęk i motywacja osiągnięć a wynik sportowy lekkoatletów wybranych konkurencji [Anxiety and aim motivation in relation to sports result of athletes in specific disciplines]. *Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu*. 2012;38:33-34. Polish.
- [33] Kochan-Wójcik M., Piskorz J. Zmiany w zakresie postrzegania i oceny własnego ciała wśród kobiet od okresu dojrzewania do dorosłości [Changes in perception and esteem of own body among women from adolescence to maturity]. *Psychologia Rozwojowa*. 2010;15/3:21-32. Polish.

Cite this article as:

Budzisz A, Nawrocka M. Dependence between body image and motivation in a group of professional swimmers and track-athletes. *Balt J Health Phys Act*. 2016;8(2):55-63.