

## SECTION – SPORT SCIENCE

(1.7) DOI: 10.5604/01.3001.0013.5129

## COMPARING SELECTED TYPES OF AGGRESSIVENESS AND INDIVIDUAL TYPES OF HOSTILITY AMONG STUDENTS OF SPORTS HOCKEY CLASSES

**Authors' contribution:**

- A. Study design/planning
- B. Data collection/entry
- C. Data analysis/statistics
- D. Data interpretation
- E. Preparation of manuscript
- F. Literature analysis/search
- G. Funds collection

Karol Görner<sup>1 ABCDEFG</sup>, Mária Gregáňová<sup>1 ABCDEFG</sup>,  
Katarzyna Wójcik<sup>2 CDEF</sup>, Michał Spieszny<sup>3 CDEF</sup>

<sup>1</sup> Department of Physical Education and Sport, Matej Bel University, Banská Bystrica, Slovak Republic

<sup>2</sup> M.A., Ph.D. student, University of Physical Education in Krakow, Poland

<sup>3</sup> Department of Physical Education and Sport, Institute of Sports, University of Physical Education in Krakow, Poland

**Key words:** aggressiveness, selected types of aggressiveness, individual types of hostility, ice hockey, primary school pupils

**Abstract:**

**Aim.** The aim of the research was to detect and compare individual subsystems of selected types of aggressiveness and hostility within age categories among students of sports hockey classes.

**Material and method.** The research sample consisted of sixth, seventh, eighth and ninth-grade boys from primary schools. The age of the learners varied from 11 to 14 years. The total sample consisted of 120 pupils. The research was implemented using the BDI (Beck Depression Inventory) standardized psychological questionnaire.

**Results.** In the results, we compared the differences in individual subtypes of aggressive behaviour and also, in overall aggressiveness between younger and older students. It turned out that in all of the observed comparisons, older learners achieved higher average values of the weighted score than the younger ones. The difference was also confirmed via the nonparametric Mann-Whitney U test, which showed that during the unilateral test, there was a 5% level of capability between younger and older learners, there is a statistically significant difference of  $p=0.031$ . Also, any increased values of resentment not occurred neither among younger learners who achieved a 4.19 average value of the weighted score, nor among older students with the average value of the weighted score at 4.81 and therefore, the differences are not statistically significant ( $p=0.681$ ).

**Conclusions.** Our research revealed that controlling emotions such as aggression is very important. Therefore, it is important to pay sufficient attention to young athletes and their coaches to prevent any manifestations of aggressiveness from their performers and to encourage fair-play in sports.

**Introduction**

Aggressiveness is a feature of personality. It is a demonstration of aggression, a tendency to deal with situations through hostile, aggressive actions [1,2]. According to three basic theories, we can understand

aggressiveness as an instinct (S. Freud, K. Lorenz), a trained property (A. Bandura) or as a bio-psychosocial conditional entity [3-5]. Aggressiveness and its definition refer to behaviour, but in practice, it is possible to define aggressiveness as an act or as a situation [6].

Authors [7-10] agree on the opinion that the term aggressiveness is derived from the Latin term “agrediti”, which means to secure access, to attack, to dare, to try to overcome or to address someone. In contrast, Berkowitz understands it as a necessary foundation of intellectual human development, a necessary assumption to obtain independence and one’s self-esteem [11]. J. Výrost, I. Slaměnik [12] agree on the opinion and define the notion of aggressiveness as follows: “aggressiveness is an offensive or attacking action, a demonstration of hostility towards a particular object, an intentional attack on an obstacle, person, subject, standing in the way to meet a need”. Other authors A.H. Buss, A. Durkee [13] assume that aggressiveness is a complex phenomenon and it is appropriate to differentiate several subclasses of hostile aggressive behaviour. Therefore, they created 8 classes (items) which are considered to be the basic subclasses of aggressiveness. Hostility can be understood as a tendency towards hostile actions, alternatively as hostile focus on a certain person, group, community or even entire social environment [14]. According to A. Sekot [15], we can define the term from the perspective of sociology of violence as the use of inadequate physical strength which can be a possible source or cause of mayhem or destruction. Socio-pathological negotiations in sport and around sport are therefore phenomena which can be considered as immoral for the sports environment, where their part is dangerous due to deviant behaviour of sportspersons or participants in the area of sportsmen and sporting events [16]. Theories of instincts according to M. Jarvis [17] and P. Kunatha [18] suggest that sport serves to effectively reduce aggressiveness in society allowing to express our aggressive instincts in a legiti-

mate way. S. Fleming [19] distinguishes three forms of violent behaviour in ice-hockey which are accepted and one form which is not tolerated: tactical violence, symbolic violence, real (actual) violence and violence with the intention to severely injure and harm an opponent – it is this violence which has the effect of severe mayhem. L. Lauer, C. Paiement [20] talk about an increased rate of aggressiveness in sport that is worrying not due to the risk of severe health problems that arise e.g. as result of

frequent head impacts, but there is also a fear that aggressive behaviour can be transferred to other situations as well. Hockey studies have shown that along with the increased level of frustration and following more frequent aggressive behaviour, e.g. greater differences in score, game in a defensive position, loss and the last third of the game, is connected with this [21].

## Aim

The article was carried out within the grant project No. 1/07/60/1 Relationship between aggressiveness and selected personal characteristics of sportspersons with regard to the sports focus, efficiency and age. The aim of research was to detect and compare individual sub-systems of selected types of aggressiveness (irritability and negativism) as well as individual types of hostility (resentment and withdrawal), within age categories of students from hockey sports classes.

## Materials

The research sample consisted of sixth, seventh, eighth and ninth-grade boys from primary schools in Lučenec and Banská Bystrica. The sixth and seventh grades were made into one group while the eighth and ninth-graders comprised the second group. The age of the students varied from 11 to 14 years. From each grade, 30 learners- hockey players - were selected, including 10 from Lučenec and 20 from Banská Bystrica, while total sample consisted of 120 pupils. A more detailed description of the research sample is given in Table 1.

**Tab. 1.** Composition of the research sample

Grade	Lučenec	Banská Bystrica	Total
6 <sup>th</sup> grade	10 boys	20 boys	30
7 <sup>th</sup> grade	10 boys	20 boys	30
8 <sup>th</sup> grade	10 boys	20 boys	30
9 <sup>th</sup> grade	10 boys	20 boys	30
Total	<b>n</b>	<b>40</b>	<b>80</b>
	<b>%</b>	<b>33.33</b>	<b>66.67</b>
			<b>100.00</b>

mate way. S. Fleming [19] distinguishes three forms of violent behaviour in ice-hockey which are accepted and one form which is not tolerated: tactical violence, symbolic violence, real (actual) violence and violence with the intention to severely injure and harm an opponent – it is this violence which has the effect of severe mayhem. L. Lauer, C. Paiement [20] talk about an increased rate of aggressiveness in sport that is worrying not due to the risk of severe health problems that arise e.g. as result of

Research was conducted in February during the 2015/2016 school year. It was implemented using the BDI (Beck Depression Inventory) standardized psychological questionnaire, created by the authors A.H. Buss, A. Durkee [13], and it is aimed at diagnosing aggressiveness. The classification of this test includes 2 types of hostility (resentment and withdrawal) and 5 types of aggressiveness (physical, indirect, verbal, irritability and negativism). The authors created items by themselves

as well as by relying from other questionnaires. To make the pro band admit to socially undesirable behaviour, it is assumed in the items that common aggressive behaviour will be obvious or an appearance of this kind of behaviour will be justified. The questionnaire consists of 75 items, 60 items are pathognomonic in a case of a positive response, the other 15 are false pathognomonic in a case of a negative response – marked F.

### Methods

Evaluation of the responses of hockey class students was carried out according to the pattern:

- calculation – total of positive responses in individual items is equal to GS (gross score) in these items, by multiplying by the respective coefficients for relevant items we receive the WS (weighted score), WS should not exceed the value of 5 in individual items, the score in the item 7 (verbal aggression) is a little higher among people from our population.
- mathematical and statistical methods (calculation of the arithmetic mean, standard deviation, minimum, maximum, Kolmogorov-Smirnov test, the Mann-Whitney U nonparametric significance test,  $p < 0.05$  level of statistical significance).
- graphic methods (schemes, charts),
- qualitative methods (comparison, analysis, synthesis, induction, deduction).

### Results

In Fig. 1, a difference in the average score can be seen and in Tab. 2, statistical significance of differences and achieved minimal and maximal values of individuals for particular subsets of aggression can be found.

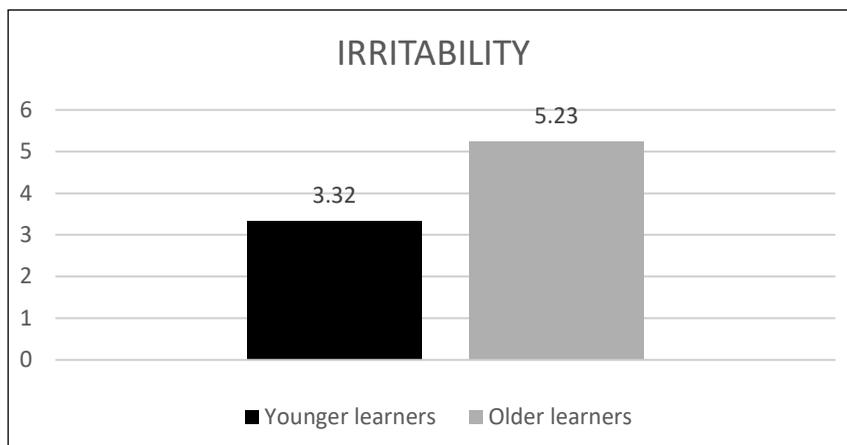
From the results of irritability, we can observe differences between younger and older learners, where younger learners did not exceed the limit value of 5 and with the 3.32 average value of the weighted score, increased irritability does not occur among them as in the case of older learners, who exceeded the value of 5 with the average value of the weighted score at 5.23 and increased irritability occurring among them.

The difference was also confirmed by the nonparametric Mann-Whitney U test, which at the 5% level of demonstrability during the unilateral test tells us that among younger and older learners, there is a statistically significant difference  $p = 0.031$ .

Concerning the results of negativism, we can observe significant differences between younger and older learners. Despite the fact that neither younger learners, with the average value of the weighted score at 2.90, nor older learners, with a 4.40 average value of the weighted score, exceed the limit value of 5 and increased values of negativism were not demonstrated among them, a certain difference among the younger and older students was noted.

**Tab. 2.** Irritability – Statistical significance of differences among younger and older learners

Irritability	<i>P</i>	Min	Max
Younger learners	0.031	0.91	7.28
Older learners		2.73	8.19



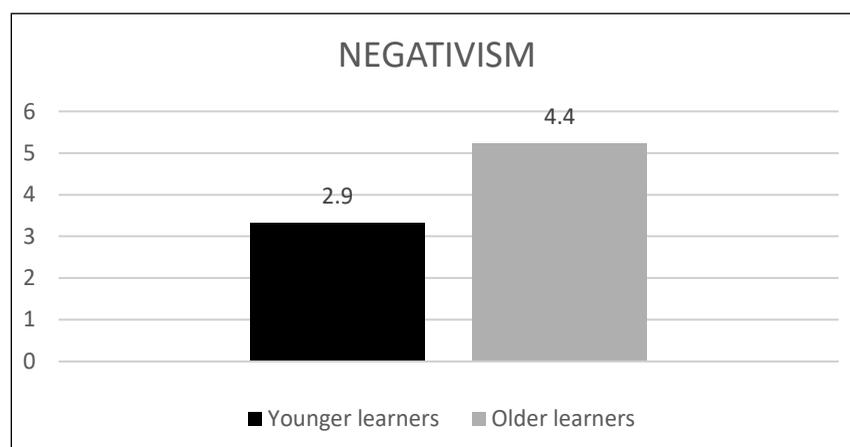
**Fig. 1.** Average values of irritability of the weighted score among younger and older learners

This difference was confirmed also by the nonparametric Mann-Whitney U test, which at the unilateral test 5% level of demonstrability shows that among younger and older learners there is a statistically significant difference of  $p=0.038$ .

From the results, we learn that younger learners achieved a 4.19 average value of the weighted score while an increased value of resentment did not occur among them. Regarding the results of older learners, we reached the average value of the weighted score at 4.1

**Tab. 3.** Negativism – Statistical significance of differences among younger and older learners

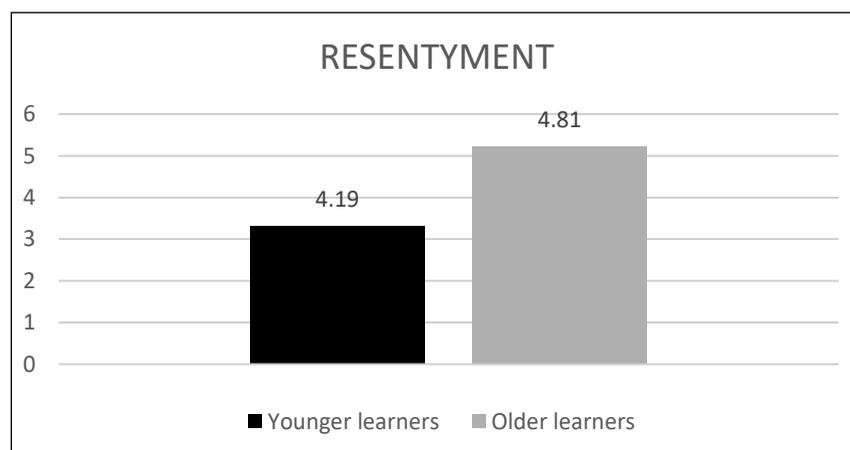
Negativism	<i>P</i>	Min	Max
Younger learners	0.038	0	8
Older learners		0	10



**Fig. 2.** Average values of negativism of the weighted score among younger and older learners

**Tab. 4.** Resentment – Statistical significance of differences among younger and older learners

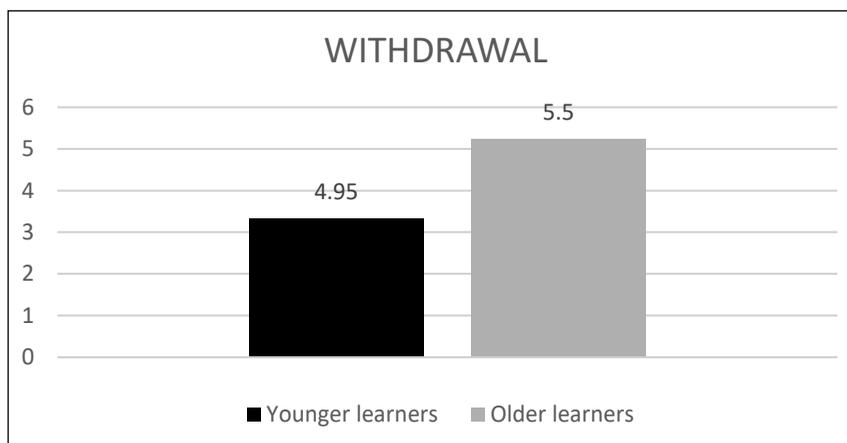
Resentment	<i>P</i>	Min	Max
Younger learners	0.681	0	8.75
Older learners		1.25	8.75



**Fig. 3.** Average values of resentment of the weighted score among younger and older learners

**Tab. 5.** Withdrawal – Statistical significance of differences between younger and older learners

Withdrawal	P	Min	Max
Younger learners	0.397	1	9
Older learners		1	9



**Fig. 4.** Average values of the withdrawal of the weighted score among younger and older learners

while increased values of resentment also did not occur among them. Statistical significance of differences between the younger and older learners was conducted via the Mann-Whitney U test, which at the 5% level of demonstrability during the unilateral test tells us that the level of  $p=0.681$  is not a statistically significant difference between the younger and older learners.

The results tell us that among older learners, an increased average value of the weighted score of withdrawal (5.50) was shown using this scale. Among younger learners, the average value of the weighted score was just below the limit of 5 with the average value of the weighted score at 4.95, and because of this, we may state that younger learners do not have increased value of shadiness.

We verified the statistical significance using the Mann-Whitney U test, which tells us that in the unilateral test at the 5 % level of demonstrability, there is a non-statistically significant difference between younger and older learners at the level of  $p=0.397$ .

### Discussion

In the results, we compared differences in individual subtypes of aggressive behaviour and also, the overall aggressiveness in younger (6<sup>th</sup> + 7<sup>th</sup> grade) and older learners (8<sup>th</sup> + 9<sup>th</sup> grade). It turned out that in all of the observed comparisons, older students achieved higher average values of the weighted score than the younger ones.

From the results of irritability, it is obvious that younger learners achieved 3.32 as the average value of the weighted score and increased irritability is not as obvious among them as it is in the case of older learners with the average value of the weighted score at 5.23. The difference was confirmed also by the nonparametric Mann-Whitney U test, which in the unilateral test at the 5% level of demonstrability tells us that between younger and older learners, there is a statistically significant difference of  $p=0.031$ . We suspect that such a difference between younger and older pupils originated from the fact that among young learners, puberty is not yet fully developed and snappishness in different stressful situations does not yet occur among them. On the contrary, among older learners, puberty is in full swing and they have a tendency to sulk in strained situations.

Fontana [22] and other authors state that during puberty, students defy authorities, wanting to become equal partners in relation to them. From the results of negativism, it is obvious that older learners achieved an even higher average value of the weighted score (4.40) on this scale, whereupon younger learners, the average value of the weighted score was only at the level of 2.90. A statistically significant difference between younger and older learners was confirmed using the nonparametric Mann-Whitney U test where  $p=0.038$ .

Resentment manifests itself as hating others or as jealousy. The results indicate that increased values of resentment did not occur among the younger or older

learners, and this is perhaps possible due to the fact that hockey players create one team, one crew, supporting one another.

Withdrawal is manifested in mistrust towards other people. Among younger learners, an increased value of the withdrawal did not occur, as they do not have enough experience with being cheated. Among older learners, increased values of withdrawal occurred, as puberty is a very difficult period for young people, different feelings alternate within, perceiving all the surrounding stimuli according to one's current mood. Aggressiveness in sport is a recent and intensively monitored topic. In research based on the use of the BDI personal inventory, e.g. Lenzi et al. [23] focused on this issue and evaluated the relationship between aggressiveness and performing sports activity (sportspeople had a higher level of aggressiveness than the average population), or Keller [24] who examined athletes performing different types of sports (he did not find a difference in the level of aggressiveness). Šafář [25], who performed similar research, focused on several groups of sportspeople (he noted a higher level of aggressiveness among players of contact sports, e.g. football, hockey) or Hodúrová [26], who concentrated on aggressiveness among different groups of coaches and found differences between e.g. coaches of football and handball, football and basketball, etc.

## Conclusions

The aim of the research was carried out using the suitably chosen method of standardized psychological questionnaire: the BDI and via the subsequent analysis of its results.

Between younger and older learners, statistically significant differences in irritability ( $p=0.031$ ) were revealed. Younger learners achieved results of the average weighted score at the level of 3.32 which is under the limit of 5, and therefore, their irritability is within the norm, but older learners achieved a 5.23 average value of the weighted score by which we proved increased irritability.

Irritability includes snappishness, grumbling and different provocations. We assume that such differences between younger and older learners originated due to the fact that among younger learners, puberty is not yet fully developed. These younger students still do everything with joy, as long as a teacher, coach, parent or tutor provides them a reasonable explanation that what they are doing is right or that what they are doing can help someone or please somebody. On the contrary, puberty is fully developed among older learners and they have a tendency to grumble and sulk in stressful situations, and when a given authority, teacher, parent obliges them to do something, they are not usually willing to do so. They want to be equal partners in the relationship with

authorities. That is why a coach in sports practice often has a problem to be respected by older learners, whereupon a coach does not have a problem with authority when coaching younger students.

Increased level of negativism was not shown in younger or older learners, where younger learners achieved average value of the weighted score at 2.90 and older learners at the level of 4.40, by which they did not exceed the limit value of 5 ( $p=0.038$ ). Although older learners did not exceed the limit value of 5 and increased values of negativism were not shown among them, there is a certain difference between the younger and older learners.

Negativism is usually manifested in the way that pupils have a tendency not to respect authorities. They want to become an equal partner in relationships with parents, they do not want to be treated as small children and wish to be understood by their parents as equal adults. In our research sample, we only studied hockey players who were constantly under surveillance of coaches they respect and adhere to the given rules of the team as well. They even transmit this respect to ordinary life in the form of respect for the elderly and maybe because of this, no increased values of negativism occurred among them.

Also, no increased values of the resentment occurred among younger learners who achieved the average value of the weighted score of 4.19 or among older learners with the average value of the weighted score at 4.81. Therefore, there are no statistically significant differences ( $p=0.681$ ) between the younger and older students.

The results tell us that neither younger nor older learners had increased values of resentment. This is also due to the fact that hockey players create one team, supporting one another. In puberty, it is very important to be part of a cohort.

Statistically significant differences of withdrawal ( $p=0.397$ ) were revealed between the younger and older learners. The younger students achieved results of the average weighted score just below the limit of 5 – 4.95, and their value of withdrawal was within the norm, but older learners achieved the average value of the weighted score totalling 5.50, by which we proved an increased value of withdrawal.

Among younger learners, the increased value of withdrawal was not demonstrated maybe because they do not have enough experience with the fact that somebody would cheat them regarding a serious matter. Among older learners, an increased value of withdrawal was shown. These learners were already in puberty, which is a very difficult period for a young person who does not know who to trust, different feelings alternate, and all the surrounding stimuli is perceived differently according to current mood, transferring this mood to practices as well.

**References:**

- [1] Nakonecny M: *Human emotions*. Praha: Academia; 2000.
- [2] Reber A. S, Reber E. S: *The Penguin dictionary of psychology*. London: Penguin Books; 2001.
- [3] Karikova S: *Fundamentals of Pathophysiology of Children and Youth*. Banská Bystrica: PF UMB; 2001.
- [4] Pavlovsky P: *Forensic psychiatry and psychology*. Praha: Grada Publishing; 2009.
- [5] Harsa P, Kertezsova D, Macak M, Voldrichova I, Žukov I: *The current manifestations of aggression*. *Psychiatrie pro praxi*. 2012; 13(1): 15-18.
- [6] Lovas L: *Aggression and violence*. Bratislava: Ikar; 2010.
- [7] Jandourek J: *Sociological Dictionary*. Praha: Portál; 2001.
- [8] Škodacek I, Černovsky K: *Symptoms of aggression in the personality of adolescents*. *Psychiatria*. 2004; 11(2): 65-69.
- [9] Martinek Z: *Aggressiveness and Crime of School Youth*. Praha: Grada Publishing; 2009.
- [10] Dobrotka G: *Themes of suicide in childhood*. *Psychológia a patopsychológia dieťaťa*. 1999; 35(1): 73-81.
- [11] Čermak I: *Human aggression and its connections*, 1<sup>st</sup> ed. Žďar nad Sazavou: Fakta; 1999.
- [12] Vyrost J, Slamenik I: *Social Psychology*. Praha, ČR: Grada Publishing; 2008.
- [13] Buss A. H, Durkee A: *An inventory for assessing different kinds of hostility*. *Journal of Consulting Psychology*. 1957; 4(11): 21.
- [14] Jandourek J: *Sociological Dictionary*. Praha: Portál; 2007.
- [15] Sekot A: *Sociological issues of sport*, 1<sup>st</sup> ed. Praha: Grada Publishing; 2008.
- [16] Sekot A: *Sociology of sport*. Padio Brno: Masarykova Univerzita; 2006.
- [17] Jarvis M: *Sport Psychology (Routledge Modular Psychology)*. London: Taylor & Francis; 1999.
- [18] Kunath P: *Sports psychology for all*. Aachen: Meyer und Meyer; 2001.
- [19] Fleming S: *Towards a Theoretical Understanding Of Violence in Ice Hockey*. *International Journal of Violence and School*. 2008; 5 (6): 118-128.
- [20] Lauer L, Paiement C: *The Playing Tough and Clean Hockey Program*. *Human Kinetics*. 2009; 8(4): 543-561.
- [21] Gee CH, J, Leith L, M: *Aggressive behavior in professional ice hockey*. *Psychology of Sport and Exercise*. 2007; 8(4): 567-583.
- [22] Fontana, D: *Psychology in school practice*. 2<sup>nd</sup> ed. Praha: Portál; 2003.
- [23] Lenzi A, Bianco I, Milazzo V, Placidi GF, Castrogiovanni P, Becherini D: *Comparison of aggressive behavior between men and women in sport*. *Perceptual and motor skills*. 1997; 84(1): 139-145.
- [24] Keller A, L: *The Differences in Sport Aggression, Life Aggression, and Life Assertion Among Adult Male and Female Collision, Contact, and Non-Contact Sport Athletes*. *Journal of Sport Behavior*. 2007; 30(1): 57-76.
- [25] Šafar M: *Comparison of aggression in selected sports groups*. Olomouc: Faculty of Philosophy; 2009.
- [26] Hodurova B: *Aggressiveness of coaches of various sports groups*. Diploma Thesis. Olomouc: Faculty of Philosophy; 2014.

**Author for correspondence:**

Michał Spieszny

E-mail: [michal.spieszny@awf.krakow.pl](mailto:michal.spieszny@awf.krakow.pl)

