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The level of aggression syndrome and a type of practised combat sport

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Key words: combat sports, aggression syndrome, socialization

Summary

Introduction. The issue of aggression and aggressiveness is very important from the application point of view, almost in every field of human activity. In the literature on psychology, aggression, as an action or form, is distinguished from aggressiveness which is an individual's feature. These ideas are, quite often, interchangeably used. In sport we also see aggression which expresses normal and positive adaptational behavior, what is close to assertiveness, not to destructive aggression. There are various definitions, but actually they refer to three theories: impulse or instinct, the theory of learning and the "frustration-aggression" theory. In sport assertive behavior is an example of highly directed physical and psychical activities. Practicing a combat sport is one of the ways of counteracting the socialization difficulties.

Material and methods. The 80 competitors (men) were subject to our examination, they practice combat sports as: boxing, aikido, taekwondo and karate (Shotokan). The examined men practice their sports in many clubs in Poland. The competitors are from the macro- regional or country teams, so they are at high-competitive levels, they are aged 22-38. The Z. Gas's Inventory of Psychological Aggression Syndrome (IPSA in Polish) was used to our examinations. The Inventory meets the requirements of a psychometric test. It has well elaborated standards, and is highly reliable in terms of indexes. The importance of mean differences (medians) U Mann-Whitney's and the t-Students importance of differences were used.

Results. On the ground of the results, we can state, that karate and aikido competitors had the highest results referred to controlling the aggressive behavior. Those results are close to high estimation, the difference, in relation to the taekwondo competitors, is of 2 sten (approx. 20 % of the increase), and the boxers of 4 sten (approx. 40 %) and it is statistically important (U test: $p=0,009$; $p<0,01$The U index, of hidden aggression, is of the average values in the boxers, and the low average in the others. The difference is statistically significant (the U test, $p=0,032$; $p<0,05$) and is nearly of 10% of the increase of index. At the index of external aggression we can observe the biggest dispersion of results. That difference is statistically significant (the U test; $p=0,0011$; $p<0,01$), and also obvious between the karate competitors, they had the average result at the low level (3 sten) and the boxers, who got the average result at the rather high level (8 sten), approx of 50% of the increase.

Conclusions. The obtained results, indirectly, indicate that the master levels, and a long-year competitive period in combat sports, result in decreasing the levels of aggression.

The levels of aggression and control their aggressive behavior are very depending on the practiced combat sport. Those, who practice karate, have the lowest levels of aggression and better control their aggressive behavior. The boxers manifested the highest levels of aggression. The average result of those, practicing karate, taekwondo and aikido, are at that index we can state the positive effects of combat sport on socialization. It manifests in the decrease of aggression towards other people. It is very important effect of practicing combat sports, in psycho-social and educational terms.

Introduction

1. Terminology

The terminology of aggression and aggressiveness in psychological literature.

The issue of aggression and aggressiveness is very important from the application point of view, in almost every field of human activity. The popularity of combat sports makes that the knowledge of forms and the increase of aggressive behavior is a very important psycho-social problem. That knowledge may be useful, for parents, in trying to find suitable sport for their children. The sport which improves their physical fitness, enables them self-defense and diminishes the levels of their aggression. Aggression (Latin agressio – assault), is a common meaning, is an action – harmful to someone or something, it is intentional and anti-standard [1]. It is difficult to define aggression or aggressiveness, mainly because of using the close-in-meaning names, both in science or common spoken languages, as: aggression, hostility, violence, conflict or attack.

"Aggression, the name which refers to any intentional actions, in an open or symbolic forms, which are aimed at doing harm or pain" [2]. "Aggression, it is a human being's behavior which is purposely done to bring harm to another individual or institution, and verbally or physically expressed, directly or indirectly, and in the negative reaction form" [3].

In the literature on psychology, there is the distinction between aggression, as a form of action, and aggressiveness as individual feature [4].

These concepts are often interchangeably used, despite the different meanings. Aronson [5], in his studies on aggression, believes that aggression is not synonymous with aggressiveness. Because there is no reason to be aggressive, while our behavior is expressed by aggressiveness. For example, we may behave aggressively, but without desire to do any harm someone or something. Therefore, he believes that one should distinguish so called hostile aggression, i.e. an act of aggression which was preceded by anger, from an instrumental aggression, that is the act of aggression for getting another aims, e.g. achieving material or moral benefits. As he states: "the difference between the hostile aggression is aimed at doing harm or pain, and is preceded by anger; whereas the instrumental one is not preceded by anger, but the action may result in harm.

There are many various definitions, in the relevant literature, but all they refer to 3 theories: impulse or instinct, the theory of learning and the "frustration-aggression".

The first theory, which is represented by, among the others, Freud [6] and Lorenz [7] say that aggression is innate behavior. There are two kinds of energy in each individual, they call it impulse: the energy of love (Libido) and aggression (Tanathos). Lorenz believes that relieving of these energies, may and should be done in socially accepted forms (katharsis). in contemporary world, sport provides such possibilities, the people whom sport "made" socially valuable individuals are of such examples.

The second model, which explains aggression, has been created by Bandura and Walters [8], it derives from the "theory of learning". It assumes that aggression is an individual's learnt feature. In learning aggressive behavior the same forms, rules and laws exist what in learning other abilities or shaping attitudes. Thus aggressive behavior is learnt by following examples and negative or positive modeling. The researches into sport also provide us with the examples of aggressive and non-aggressive behavior [9, 10, 11, 12]. These non-aggressive relate to assertive behavior. It depends on a coach or training-staff behavior, furthermore philosophy, ideology or the values connected with particular sport [13, 14, 15].

The third model, called the "theory of frustration-aggression by its founders Dollard and Miller [17]. It assumes that frustration is connected with obstacles on our way while overcoming them. In competitive or professional sports various obstacles or difficulties are immanent in their activities. Sportsmen have to possess the abilities of overcoming stress and frustration.

Amateur sport and recreation, on the other hand, are the best ways of venting negative energy.

2. Conditions of aggressive behavior

At present, the numerous results of different scientific examinations provide us with the reasons of aggressions in three fields: genetic biochemical and environmental. In the 60 s of the 20th centaury, the genetic research was famous because of discovering the Y chromosome, from the lunatic asylum inmates. Further research into DNA had refuted that theory, because the Y chromosome was also founded in decent people. Other research into biochemistry revealed that the children, who torture animals, and the people, who committed suicides, had low levels of serotonine metabolites concentration in their cerebro-spinal fluid.

Vasta, Haith, Miller [18] believe, that the level of aggression in the individual, maintains at the same level for many years. In the longitudinal examinations it was found that the assessment of children aged 8, could foresee aggression and anti-social attitudes at the age of 30. That level of stability allows to genetic and biological explanations of behavior.

Some sources of aggressive behavior may be connected with the growing quantity of aggressive scenes watched on television or other media. Watching cruel, aggressive scenes enforces aggressive behavior and teaches new forms of aggression. It also results in the increase in indifference, and it is modeling particular types of behavior. Watching and keeping in mind the aggressive scenes, from childhood, may result the increase in aggression in adult people. The Baron's research proved that the children, who watch the films with aggressive scenes, are much more aggressive than those who do not [5].

According to Davis, people of different social status have different levels of aggression. He found that young people, from lower class, reveal higher levels of aggressiveness, than those from middle and upper classes. He also claims that the differentiation derives from the fact, that the young people, from lower class live in more aggressive environment. Thus, social status greatly influences the aggressiveness [5].

Tuner and Helms [19] notice that style of education and parent's educational methods may affect their children's anti-

social attitudes. As they say: "broken families, lack of parental love, strict discipline, material deprivation and corporal punishment may result in non-adaptation and individual's social development. Therefore poor self-confidence, lack of self-reliance and bigger aggression veness may be developed in teenagers.

Kmiecik-Baran [12] indicates that aggressive youngsters experience, much more sexual and emotional abuses. She, furthermore, claims that: "the level of fear – as an individual feature, and as a state in aggressive people, is higher than in those non-aggressive". It seems that aggression is a way of diminishing fear in hard situations.

Ogińska-Bulik [11] presents research into children's behavior. In the A type of individuality, there is higher manifestation of aggression, anger or hostility, than in the B type, because they are not able to deal with the requirements or expectations from their parents.

Miklewska [10] in her research on the individual features relations, particularly temperament, stated that there was the relationship between particular temperament and higher level of aggression and aggressive behavior.

Buss assumes that there are two kinds of aggressive behavior: aggression – direct or indirect inclination towards attacking people, both verbally and physically, and hostility – mainly expressed by negative verbal opinions. He has also introduced the concept of aggressiveness as an individual variable, which embraces permanent and changeable reactions derived from habits. Aggressiveness is believed to be a habit of attacking,. Its level is determined by four factors: previous influence of factors which bring anger, and precede aggression (assault, frustration, non-pleasant and irritation impulses) intensification of aggressive reactions (reward), and it may be the after – aggression decrease in tension ("internal" reward) or elimination of the frustration source, and achieving a reward ("outer" intensification) social intensification or the standards of conduct which give:

a) the models of aggressive conduct
b) frequent provocations to aggression
c) the acceptation of aggression in a group, what is an important reward for an individual and intensifies strong aggressive reactions innate biological predispositions which do not significantly influence human aggressiveness [20].

3. The relationship between aggression and sport

In is commonly believed, that aggression helps to win. There is Leo Durocher's, a baseball coach, famous opinion: "Nice guys lose their matches" [21]. In the Tutka and Ogi Mego's Sports Motivation Questionnaire [22], aggression has been recognized as a one of ten features linked with sport success. We, however, have to see the difference between hostile aggression and instrumental one or assertiveness. It is possible, that common acceptance of aggression in sport, actually means the acceptance of assertiveness, but not aggression.

According to Karolczak-Biernacka [23] "sport may be described as the field with immanent aggression . As a task,

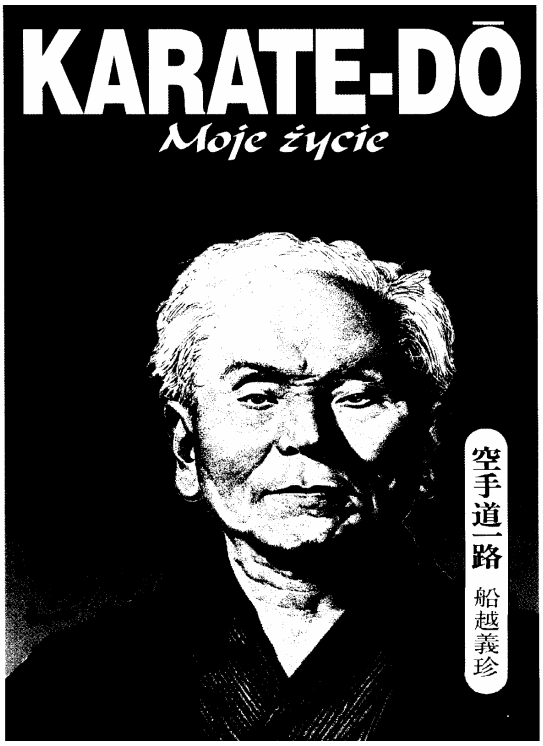
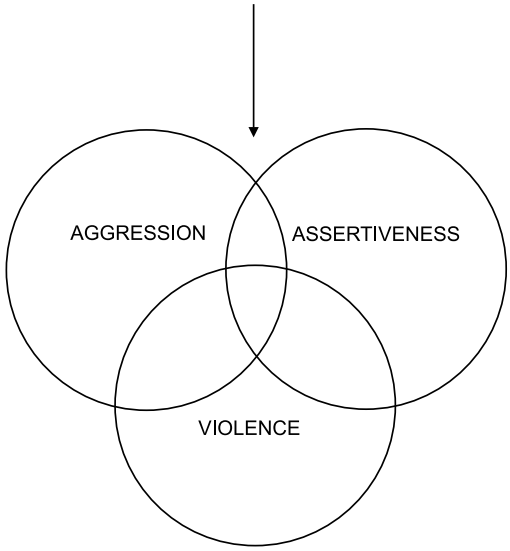


Photo 1. Gichin Funakoshi [13]

where aggressive behavior derives from the nature of performed actions, it is purposely produced and rewarded. As a system, where the control and actions are carried out in order to bring the aggressive reactions", and furthermore, "aggression in sport embraces a wide spectrum of sport actions, competitors' behavior and fans' sub-culture. It derives from the nature of sport and also takes over civilization occurrences.

Thirer [22] writes, that aggression in sport manifests itself in two forms: non-destructive connected with assertiveness, self-defence attitude pursuing goals; and quick-tempered which is manifested by destruction, anger, revenge and fury.



Diag. 1. A set of aggressive behavior indexes in sport

The latter aggression has intentional malice, however without physical assault.

In sport, we also have the idea of aggression which expresses normal and positive adaptation behavior close to assertiveness. Assertive behavior is often formulated as a highly motivated physical and psychical activity.

In 1997, the International Society of Sport Psychology (ISSP) formulated so called Recommendations, opinions on condemning violence and aggression in sport.

4. The effect of practicing sport an aggressive behavior

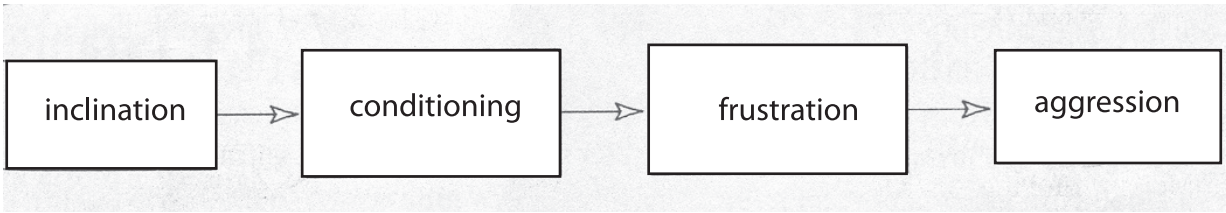
There is a great deal of controversy about the increase or the decrease in aggression in sport. There is some risk, as to whether combat sports provoke new aggressive behavior which may be used in assaulting people, and they also cause the increase in aggression (see fig. 2).

Irrespective of situation and practiced sport, aggression as the loss of self-control. Quite often such reactions result from frustration; and sport may be the source of frustration.

On the other hand, physical effort and practiced sport may cause venting aggression. Especially, when egzogenic (ecosystem) or/and endogenic factors cause higher level of stress and frustration. In such situation sport may mitigate and diminish the level of aggression by physical exercises.

The research an personality and aggressive behavior in sport has had over the half-a century history. Combat sports, especially the Oriental martial arts, are of great interest, because of their philosophical background and mental exercises which may result in high self-control and regulation of the cognitive-emotional process as well as behavioural one. Thus we have invited to our examinations the competitors from "martial arts" as: karate aikido, and those from combat sports as: taekwondo, boxing.

Szmajke and Doliński [24], in their research into aggression, have found that boys and girls, who practice "contact sports", had higher levels of aggression. Other sports did not have significant effect on aggression. The results indicate lower levels of aggressing in the advanced people; it seems that practicing karate may diminish aggressiveness. Other examinations confirmed the findings from relevant studies. Daniels and Thornton [25] have assessed the level of aggression in karate practitioners; they used the Buss-Durkee's Aggression Scale. They found that there was the negative relationship between hostility (tendency to react by physical violence) and the duration of training (r = -0,64). Nosanchuk [26] discovered the similar relationship in those who practice karate. Budnik [27] in her research in traditional & sport karate into aggression has found that who practice "sports karate", had higher levels of aggression than who practice "traditional karate". Similar relationships were revealed by Graczyk [28] in his research on the National Team boxers (juniors and seniors). Juniors manifested significantly higher level of aggression that seniors. It may suggest that sportsmen's aggression diminishes along with age and the training duration, as an effect of aggression sublimation. Whereas in youngsters, who practice combat sports, that effect is being intensified.



Diag. 2. Venting the aggressive act affected by an obstacle [1]

Photo. 2. Boxing in Olympic Game 2008 (own material)

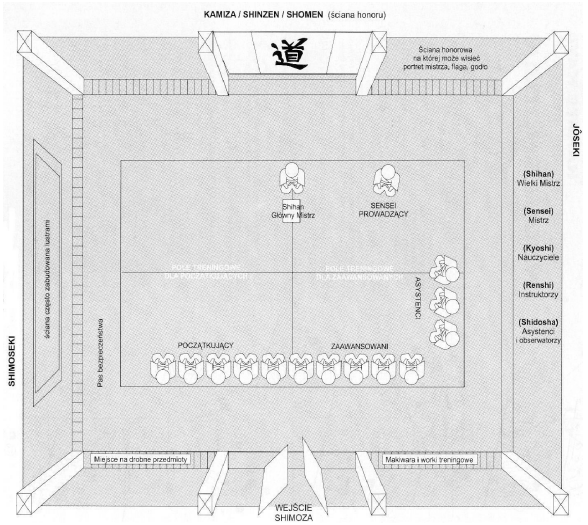


Photo. 3. Order in Karate dojo [34]

Rychta [29] dealing with the same problems, draws the attention to the fact, that aggression may develop individuals: intellectually, and improve motivation, and it also brings to pathological behaviour which is socially non-accepted. Commercialization and pharmacological doping are also negative elements connected with contemporary sport, especially the professional one. On the other hand, we can see many positive examples e.g. following the fair play rules etc.

Thus, we may expect more optimistic future in sport activities. Gracz [1] writes about 7 ways of "soothing the level of aggressiveness and building pro-social attitudes in sport".

They are as follows:

- personal example and reliability of a coach,
- psycho education aimed at revealing the weakness of the aggressive competitors,
- promoting pro-social values, and fair play rules,
- adequate punishment for breach of sport rules,
- training of venting one's anger, diminishing emotional tension and building the ability of willing to forgive,
- increasing the emotional intelligence and developing social competence e.g. empathy, preventing dehu manization in sport,
- proper intensity and the volume of load and promoting self-assessment and self-acceptance.

The above elements indicate that physical activity can be, both a reducer and a stimulator, of the aggressive behaviour.

In the majority of the European Union's States, there are the programmes aimed at the education of society through sport activities. Unfortunately, in Poland, sport is often presented in the context of corruption, dirty business and scandals, or success and defeats, but little about real sport values [30]. The importance of sport is vital for promoting and developing many values, e.g. socialization, overcoming obstacles and so on. Participating in physical activity a human is preparing for his/her life within particular society. Furthermore, sport activity brings humanistic values as well as health and recreational ones.

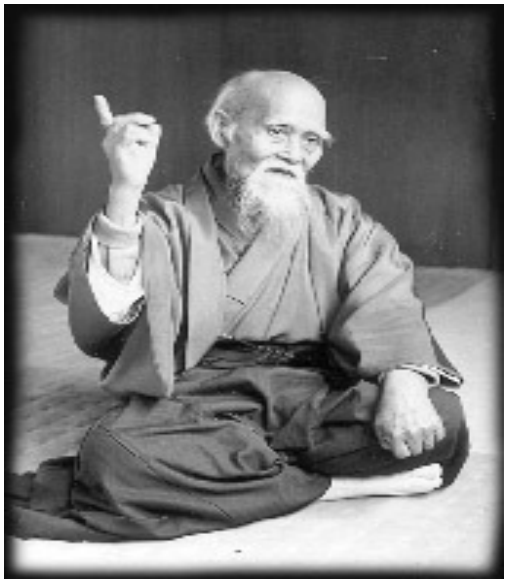


Photo. 4. Morihei Ueshiba , O-SENSEI, "father" of Aikido [14]

Material and methods

1. Purpose, problems, hypothesis

The purpose of this work is to describe the levels and forms of aggression manifested in the competitors, who practice some combat sports as: boxing, aiki-do, taekwondo and karate (Shotokan). They are advanced in their sports at the champion level (macro-region level). The results will also show the most aggressive competitors depending on the particular combat sport. The results obtained from our analysis allow to conclude, which sport can diminish the level of aggression (katharsis).

Combat sports were selected on the ground of their philosophical background and mental exercises are of great importance to the cognitive-emotional as well as behavioral processes. We have selected the competitors from "martial arts" as: karate and aiki-do, and from combat sports as: taekwondo and boxing.

Therefore we have constructed the following questions:

- What are the levels of aggression in the competitors
- karate Shotokan, aiki-do, taekwondo and boxing?
- Does a type of sport affect the level of aggression?
- What forms of aggression do they represent?

The above said questions allowed to formulate the following hypothesis:

The practiced combat sports can result in aggression.

The boxers have the highest levels of aggression.

The lowest levels of aggression have those who practice karate.

The average results of the competitors, at the macro-regional champions level, should not exceed the mean results within general standards for the aggression syndrome indexes.

2. Tools

We have used the Z. Gas's Inventory of Psychological Aggression Syndrome (IPSA in Polish). That Inventory meets the requirements of a psychometric test. It has well elaborated standards, and is highly reliable in terms of indexes [31]. The IPSA has been designed for examining adult people, it consists

Photo. 5. Taekwondo in Olympic Game 2008 (http://www.taekwondo.krakow.pl/)

of 83 standard questions following IO scales, marked by Roman numbers from I to VIII and K and O letters. The examined person can answer in three ways: yes (T), no (N) or the question mark (?). –if he/she is not sure of answer. Owing to the Z. Gras's Inventory of Psychological Aggression Syndrome we are able to examine the following forms of aggression: I-emotional self- aggression, II-physical self-aggression, III- hostility to the environment, IV-unconscious aggressive inclinations, V-displaced aggression, VI-indirect aggression, VII- verbal aggression, VII – physical aggression, K – aggressive behaviour control, O – revenge inclination. Additionally, summing up, the above aggression, we can calculate the S – the self-aggression index (I+II), U – the hidden aggression index (III+IV), Z – the outwards aggression (V+VI+VII+VIII), and the general index, i.e. the general level intensity of aggression syndrome (WO=I+II+III+IV+V+VI+VII+VIII+0-K+22). Two points are counted for "yes" answer. Gathering together the answer-points, the results are calculated according to the sten scale (10-sten); 1 sten – very low level of aggression, 2 and 3 sten – low, sten 4 – average-low, 5-6 average, 7 average-high, 8 and 9 – high, and 10 very high level of aggression.

3. Material and procedure

80 competitors (men) were subject to our examination, they practice combat sports as: boxing, aikido,z taekwondo and karate (Shotokan). The examined men practice their sports in many clubs in Poland. Twenty, the most advanced competitors, from each combat sports, were examined. They have practiced their sports for many years (10-20 years and more). The competitors are from the macro-regional or country teams, so they are at high-competitive levels, they are aged 22-38. Considering the purpose of our examinations, we did not include their education. The boxers have the lowest educational levels.

The examinations were carried out in 2006-2008, during training camps prior to important domestic tournaments.

The obtained results were statistically calculated and analyzed. The statistical analysis embraced the descriptive and decision ones.

Within the descriptive analysis we had; the graphic and numerical presentation of the obtained results, the tables of contigence, with the quantity and percentage. As the measure of position we have adopted the mean and 7 the Tukey's non-parametric descriptions (minimum, 10 % quanties, 25 % quartyl, median, 75 % quartyl, 90 % quanties, maximum). The standard deviations (SD) were taken as the dispersion measure, at N as the numerical of the groups and sub-groups. The statistical values, and with the division into the examined groups, have been presented in the tables and in the graphic form.

The statistical tests of the Statistica 7.1 and the Maple V 7,0 of symbolic calculations were used for the statistical decision analysis, The expected values difference, for both groups, was taken on the ground of non-parametric testing. The importance of mean differences (medians) U Mann-Whitney's and the t-Student's importance of differences were used. As a rule, we adopted marking the test which has been used for the verification of the particular hypothesis. Those values have been presented in the tables. We adopted the limit level p=0,05. At the significance level, lower than 0,05, the decision about the difference significance, was taken $p<0,05$.

The sten scale: (from English: Standard ten) we used to interprete the results qualities. That Scale parameters: average = 5,5, standard deviation = 2,0. The scale has 10 units (stens). One unit = 0,5 of the standard deviation. Each unit refers to the percentage of the area at the standard curve of the results dispersion. The result of 5-6 sten is average, 4-7 mean, 8-10 high, and 1-3 sten low [32].

Results

The graphic presentation and description of the results from the IPSA have been presented in accordance with the Scales:

Scale I – emotional self-aggression,
Scale II – physical self-aggression,
Scale III – hostility to the environment,
Scale IV – unconscious aggressive inclinations,
Scale V – displaced aggression,
Scale VI – indirect aggression,
Scale VII – verbal aggression,
Scale VIII – physical aggression.

Below we see the levels of aggression in the people who practice combat sports: karate, taekwondo, aikido and boxing.

On the ground of the obtained results, we can state that the highest average results, at emotional self-aggression, were

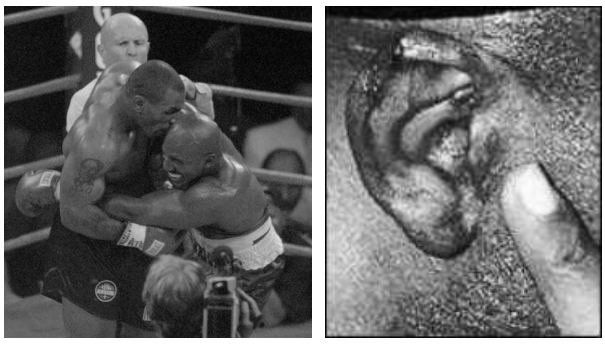


Photo. 6. Tyson and Holyfield (http://www.sfd.pl/)

Photo. 7. Test Tamaeshiwari [34]

Photo 8. Aikido (http://aikido.qdnet.pl/)

observed in the boxers and aikido people. The difference is significant as comparing with the karate and taekwondo competitors (the U test; p=0,048, p<0,05). It means that the boxers and the aikido competitors have greater inclinations towards accusing themselves. Perhaps, there is the relationship between lower self-acceptance and the higher ambition or, so called: strong ergic tension. Those results also reflect, attribution style, the reasons of success and defeat. The boxers and aiki-do competitors are much more inclined towards rumination. At the II scale only boxers have physical self-aggression.

The results are statistically significant (the U test; p=0,0012; p<0,01), they indicate high level of self-aggression, including the forms of self-mutilation. The boxers have the highest levels of physical aggression (scale VIII), at the average high level (average the others). The relevant literature confirm those findings. The results at I and II scales are very close to those the Graczyk's [28] examination results, carried out at the beginning of the 90s. The representatives, of form other combat sports, obtained the results of II, between average and average higher results; there is no significant statistical difference. At III scale (hostility) similar relations can be seen. The highest, but at the level of 6 step, average, the results obtained in the boxers were observed, by 2 sten lower. That difference is statistically significant (U test; p=0,0011; p<o,01) and quite clear (2 sten make approx. 20% of the intensity difference). On the ground of this scale, we may conclude the positive effects of sports, actually martial arts (karate, taekwondo, aiki-do) on socialization which is manifested by the decrease in hostility to people. It is very important element from the psycho-social and educational points of view. Even, considering the boxers we may speculate on the purifying influence (katharsis) of their training. These conclusions are also similar to the previous findings by Graczyk [28] and the others. This dependence is confirmed by the lowest results, i. e. within the average ones in aiki-do, taekwondo and boxing as well as karate (low, statistically significant, the U test; p=0,024; p<0,05) at the IV and V – unconscious aggressive inclinations and displaced aggression. The VI scale – indirect aggression – is the highest. The differences are observed (in plus) only between the boxers and the members of other combat sports. Slightly lower results – average – were obtained at verbal aggression scale. Only boxers, both in their minds and used vocabulary, prove their lower manners, what resulted from their lower social status (the U test; p=0,009; p<0,01).

General dispersion of the IPSA results

I scale – emotional self-aggression. 67,5% of the examined obtained low results, i.e. 3-4 sten, 12,5% of them have the average results, i.e. 5-6 sten, 15% of the competitors got high resultsm i.e. 7-8 sten. None of the examined obtained 9-10 sten (very high); and 2,5% of the competitors have very low results, i.e. 1-2 sten. The average intensity of the emotional self-aggression was 4,45 sten.

II scale – physical self-aggression. 45% those examined obtained average results, i.e. 5-6 sten, 47,5% obtained high

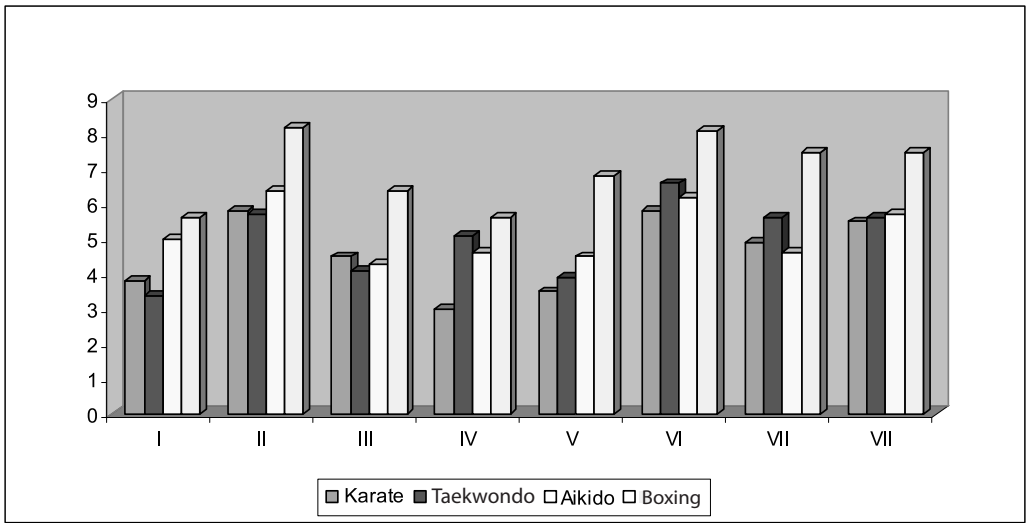


Fig. 1. The presentation of the average results, the Sten Scale I, II, III, IV, V, VI, VII, VIII. (N=80; karate N=20, taekwondo N=20, aikido N=20, boxing N=20). The statistical analysis has been given in the text

results, i.e. 7-8 sten, very high results were observed in 7,5% of the competitors, i.e. 9-10 sten. None of them obtained low results, i.e. 3-4 sten and 1-2 sten. The average intensity of physical self-aggression was 6,52 sten.

III scale – hostility to the environment. 52,5% of the examined competitors got low resultsm i.e. 3-4 sten, 27,5% of those practiced sports have average results, i.e. 506 sten; 20% have high results. None of the examined got either very high, and very low results. The average intensity of hostility was 4,82 sten.

IV sten – unconscious aggressive inclinations. 15% obtained very low results, i.e. 1-2 sten, 32,5% of the examined have low results, i. e. 3-4 sten, nearly half of the examined (42,5%) obtained average results, i.e. – 5-6 sten, 5% have high results, i.e. 7-8 sten, also 5% have very high results i.e. 9-10 sten. The average intensity of unconscious aggressive inclinations was 4,57 sten.

V scale – displaced aggression. 47,5% of the competitors have low results, i.e. 3-4 sten, 37,5% got average results, i.e. 5-6 sten; 37,5% got average results, i.e. 5-6 sten; 10% obtained high results, i.e. 7-8 sten 5% have very high results, i.e. 9-10 sten. None of the people obtained very low results, i.e. 1-2 sten. The average intensity of the displaced aggression was 4,67 sten.

VI scale – indirect aggression, our examinations reveal that almost half of the competitors, 55%, obtained average results, i.e. 5-6 sten. 27,5% of them had high results, i.e. 7-8 sten, 17,5% of the competitors obtained very high results, i.e. 9-10 sten. None of the examined obtained low (3-4 sten) and very low results (1-2 sten). The average intensity of indirect aggression was 5,17 sten.

VII scale – verbal aggression. 30% of the examined people obtained low results, i.e. 3-4 sten; 47,5% obtained average results, i.e. 5-6 sten, 7,5% of the examines obtained high results, i.e. 7-8 sten, 15% of the competitors obtained very high results, i.e. 9-10 sten. None of the people obtained very low results, i.e. 1-2 sten. The average intensity of verbal aggression was 5,65 sten.

VIII scale – physical aggression. 70% of the competitors obtained average results i.e. 5-6 sten. 17,5% of the examined got high results i.e. 7-8 sten; whereas 12,5% of the competitors obtained very high results, i.e. 9-10 sten. None of the examined obtained low results of 3-4 sten, and very low of 1-2 sten. The average intensity of physical aggression was 6,07 sten.

The dispersion of the aggression syndrome results: karate, taekwondo, aikido, boxing in the IPSA scale.

On the ground of the obtained results, we can state that the highest results, in the K scale of the aggressive behaviour control, were observed in the karate and aikido competitors. The results are on the high side. The difference in relation to the taekwondo competitors is 2 sten (approx. 20% of intensity), and the boxers 4 sten (approx. 40%), and it is statistically significant (the U test; $p=0,009$, $p<0,01$).

It means that the karate and aikido competitors can better control their aggressive behaviour, than those from taekwondo and boxing. It may result from their mental exercises as well as Buddhist philosophy and meditation. Such kind of exercises are a little practiced in taekwondo; but little seen, if ever, in the boxers' training. The ability to control aggressive behavior, is one of the most important elements of emotional intelligence, so called: social competence. The differences, in the intensity of that index, are statistically significant in the karate and aiki-do competitors. The index of self-aggression has already been discussed. The boxers and aiki-do competitors are much more inclined towards rumination. The hidden aggression index (U) only, in the boxers have the average values. The difference is statistically significant (the U test; $p=0,032$, $p<0,05$) it is approx. 10% the intensity of the index. The biggest dispersion of the values can be seen in the outwards aggression index (Z). The difference is statistically significant (the U test; $p=0,0011$, $p<0,01$), between karate (the average result is 3 sten) and the

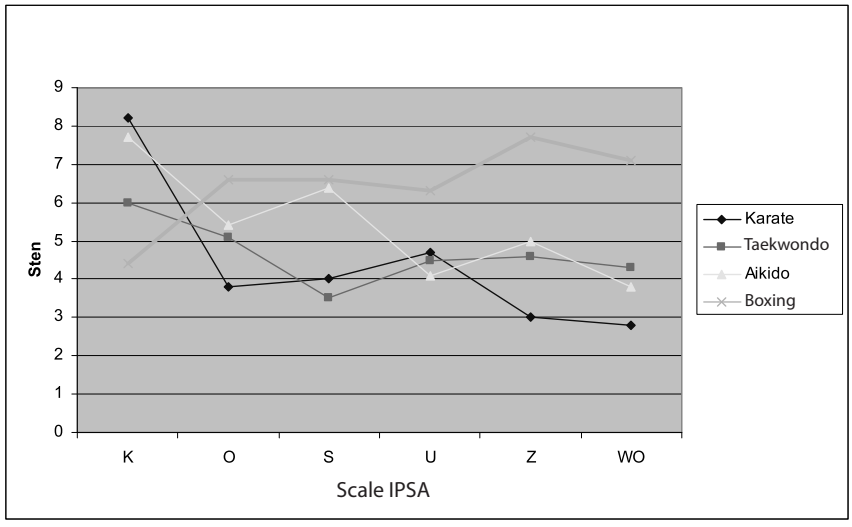


Fig. 2. Presents the average results of the aggression syndrome intensity in the competitors from some combat sports. The K, O, S, U, Z, WOmean:
K- aggressive behavior control, O – revenge inclination, S – self-aggression index (I+II scales), U – hidden aggression index (III+IV scales), Z – outwards aggression index (V+VI+VII+VIII), WO – general index of the aggression syndrome intensity (I+II+ III+IV+ V+VI+VII+VIII+O-K+22, N=80, K=20 karate; N=20 taekwondo, N=20 aiki-do, N=20 boxing). The statistical analysis given in the text

boxers (the high result is 8 sten) approx. 50% of the difference intensity. The taekwondo and aikido competitors obtained the average results, 5 sten. On the ground of that index we can see the positive influence of martial arts (karate, taekwondo, aikido) on socialization. It is of great importance in terms of psychosocial and educational attitudes.

Even, considering the boxers we may speculate on the purifying influence (katharsis) of their training. The results, obtained in the general index of the aggression syndrome, are the average higher values (see Fig. 3). These conclusions come along with the Graczyk's previous examinations [28].

The results of the intensity of the aggression general index (IPSA results) in the competitors who practice karate, taekwondo, aikido, boxing.

The karate competitors have the lowest results of the average results of the aggression syndrome index (the U test; $p=0,029$; $p<0,05$). It may result from the karate philosophical principles, created by G. Funakoshi "Karate ni sente nashi" [13] in Japanese ("Karate is not a form of aggression. Karate will die when became sport"). The taekwondo and aikido competitors' results are the average low. Whereas, the highest values of that index were observed in the boxers. The difference between the boxers and the others is statistically significant (the U test; $p=0,0011$, $p<0,001$). The differences are connected with social status, educational levels and the environmental influence.

The general distribution of the IPSA examination results

A comparison of the aggressive behaviour control in the combat sport competitors

K – aggressive behaviour control index, on the ground of the examinations, we can see that 12,5% of the competitors obtained very low results i.e. 1-2 sten; 7,5% have low results, i.e. 3-4 sten, 27,5 of the people have average results 30% obtained high results i.e. 7-8 sten, whereas 22,5% of the examined have very high results.

S – self-aggression index (the Z-HZ scales), on the ground of the examinations, we can see that 42,5% of the examined had low results, i.e. 3-4 sten, 35% average i.e. 5-6 sten, 12,5% had high results, i.e. 7-8 sten, 5% of the people had very high results, i.e. 9-10 sten, 5% had very low results, i.e. 1-2 sten. The average intensity of self-aggression index was 5,12 sten.

A comparison of the hidden aggression index in the combat sports competitors

U – hidden aggression index (III+IV), on the ground of the examinations, we can see that 12,5% of the competitors got very low results, i.e. 1-2 sten, 50% got low results, i.e. 304 sten, 20% average results, i.e. 5-6 sten, 15% of examined had high results, i.e. 7-8 sten, 2,5% had very high results, i.e. 9-10 sten. The average intensity of hidden aggression index was 4,90 sten.

A comparison of the outwards aggression index in the combat sports competitors

Z – outwards aggression index (V+VI+VII+VIII) on the ground of the examinations, we can see that 12,5% of the competitors had very low results, i.e. 1-2 sten, 37,5% of the people had low results, 3-4 sten, 25% average results, i.e. 5-6 sten, 12,5% high results i.e. 7-8 sten, 12,5% of those examined had very high results, i.e. 9-10 sten. The average intensity of the outwards aggression index was 5,07 sten.

A comparison of the general index of the aggression syndrome intensity in the combat sports competitors

WO – general index i.e. general level of the aggression syndrome intensity (I+II+III+IV+V+VI+VII+VIII+O-K+22)

The examinations revealed that 7,5% of the people obtained very low results, i.e. 1-2 sten, over 55% of the competitors had low results, i.e. 3-4 sten, 15% had average results, i.e. 5-6 sten, 17,5% high results, i.e. 708 sten, 5% had very high results, i.e. 9-10 sten. The average intensity of general index aggression syndrome was 4,5 sten.

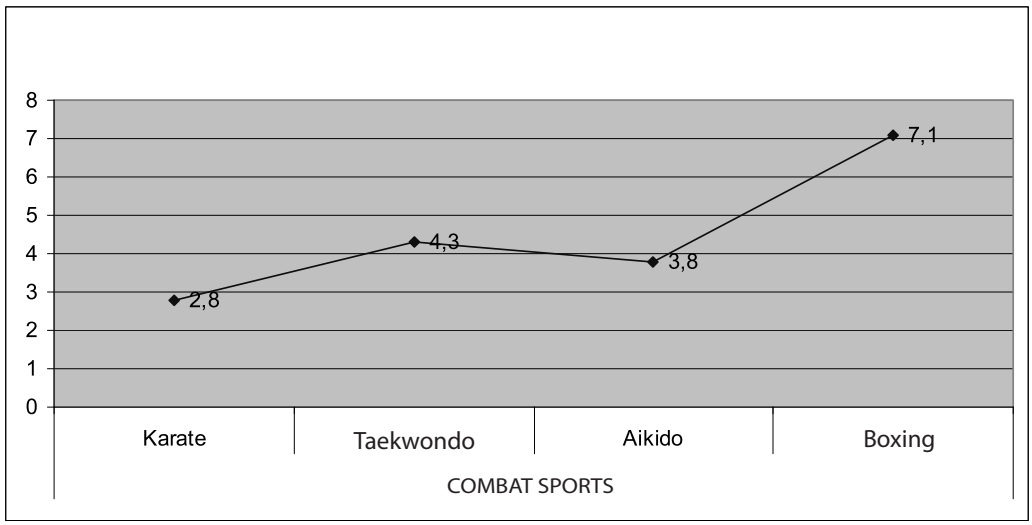


Fig. 3. The presentation of the average results, the Sten scale, N=20 karate, N=20 taekwondo, N=20 aiki-do, N=20 boxing. The statistical analysis has been given in the text

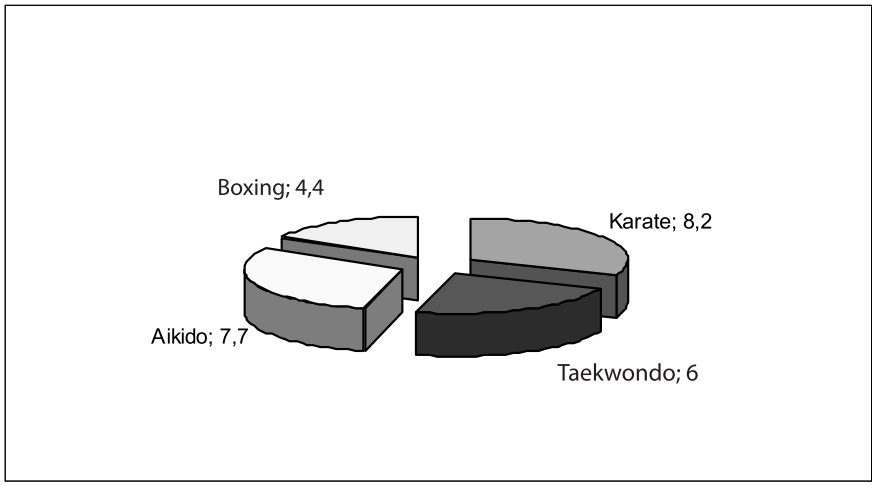


Fig. 4. The statement of the general level of the aggressive behaviour control (K), IPSA sten scale

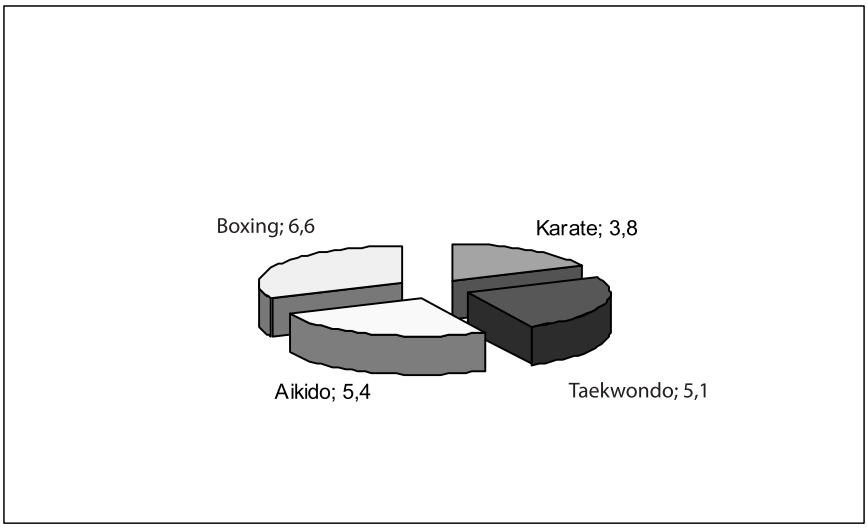


Fig. 5. The statement of the general level of the revenge inclination (O), the IPSA sten scale

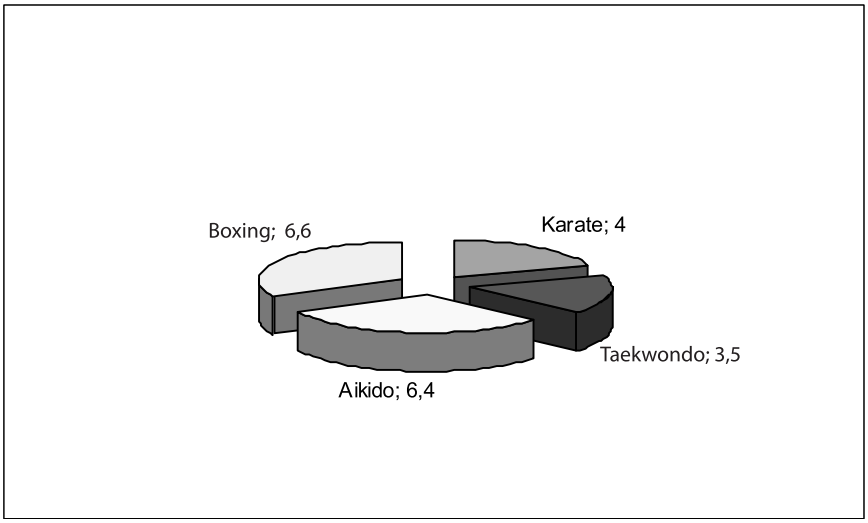


Fig. 6. The statement of the self-aggression index (S), the IPSA sten scale

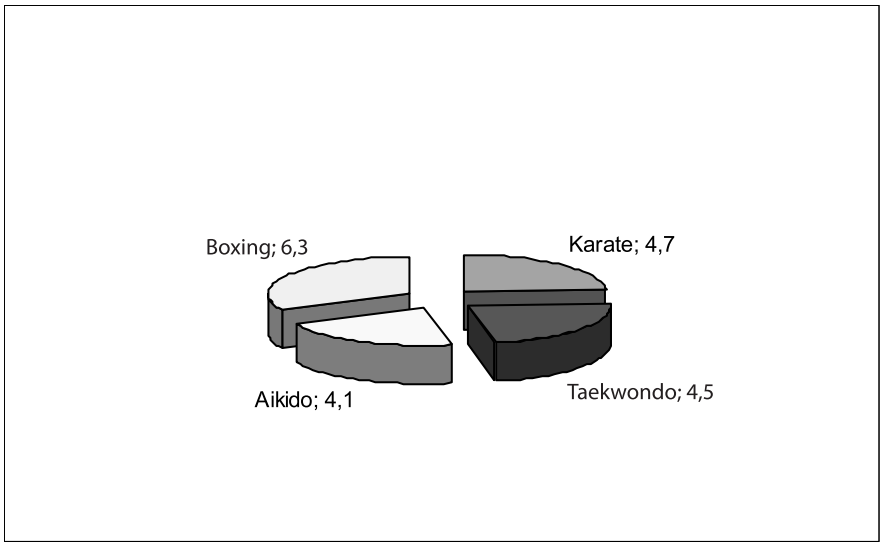


Fig. 7. The statement of the hidden aggression index (U), the IPSA sten scale

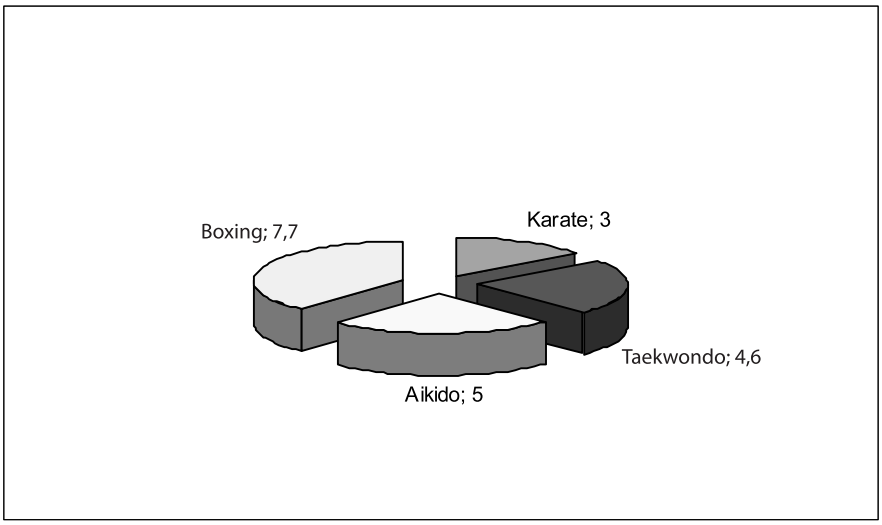


Fig. 8. The statement of the outwards aggression index (Z), the IPSA sten scale

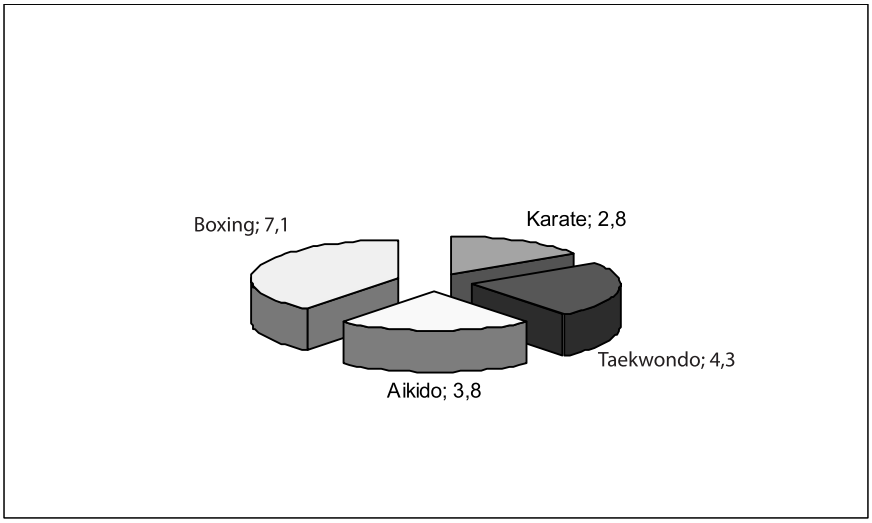


Fig. 9. The statement of the general index of the aggression syndrome (WO), the IPSA sten scale

Conclusions

The carried-out examinations have provided us with the information on the intensity and forms of aggressive behaviour manifested in the people with long-year competitive experience in combat sports.

The results revealed that practicing sports may be either stimulator or reducer of aggressive behaviour, Over 70% of the examined competitors obtained low, average low and average results of the general index of the aggression syndrome.

Of them, nearly 12% had low and very low results (1,2,3 sten), and over half of the competitors (62%) had average low, average and average high results (4,5,6,7 sten). Almost a quarter of the examined group (23%) manifest high level of the aggression syndrome (8, 9 sten), and only 3% of the competitors reveal very high level of the aggression syndrome.

The obtained results, indirectly, say that master level in combat sports, and long experience, positively influence the decrease in aggressiveness.

The levels of aggression are differentiated, depending on a kind of martial art. Those who practice karate manifested the lowest levels of aggression (average result of 2,8 sten – general aggression syndrome index). The boxers had the higher levels of aggression (approx. 7,1 sten). The aikido competitors (average result of 3,8 sten) as well as taekwondo (average result of 4,3 sten) do not manifest the significant differences in terms of the intensity of the aggression syndrome. These dependencies are confirmed in 1, 2, 3 hypothesis, and to some extent, an assumption related to the philosophical background and mental exercises in karate.

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Annex. 1. Dispertion of results of syndrome aggression at coaching the Karate; scales (I – VIII)/ N = 20

Results of level of syndrome aggression at coaching the Karate	Sten	Scales of Z.B. Gas' The Questionnaire of syndrome aggression							
		I	II	III	IV	V	VI	VII	VIII
		%	%	%	%	%	%	%	%
Very high	10	0	0	0	0	0	0	10	0
	9	0	0	0	0	0	10	0	0
Total	9 - 10	0	0	0	0	0	10	10	0
High	8	0	20	0	0	0	0	0	0
	7	0	10	20	0	0	10	0	20
Total	7 - 8	0	30	20	0	0	10	0	20
Average	6	0	0	10	0	10	20	20	10
	5	10	70	0	20	10	60	20	70
Total	5 - 6	10	70	10	20	20	80	40	80
Low	4	50	0	40	0	0	0	20	0
	3	40	0	30	40	80	0	30	0
Total	3 - 4	90	0	70	40	80	0	50	0
Very low	2	0	0	0	40	0	0	0	0
	1	0	0	0	0	0	0	0	0

Annex. 2. Dispertion of results of syndrome aggression at coaching the Taekwondo; scales (I - VIII)/ N = 20

Results of level of syndrome aggression at coaching the Taekwondo	Sten	Scales of Z.B. Gas' The Questionnaire of syndrome aggression							
		I	II	III	IV	V	VI	VII	VIII
		%	%	%	%	%	%	%	%
Very high	10	0	0	0	0	0	0	10	0
	9	0	0	0	0	0	10	0	0
Total	9 - 10	0	0	0	0	0	10	10	0
High	8	0	10	0	0	10	20	0	0
	7	0	20	0	20	0	10	0	20
Total	7 - 8	0	30	0	20	10	30	0	20
Average	6	10	0	0	20	0	40	30	20
	5	0	70	40	0	20	20	50	60
Total	5 - 6	10	70	40	20	20	60	80	80
Low	4	10	0	30	40	0	0	0	0
	3	80	0	30	10	70	0	10	0
Total	3 - 4	90	0	60	50	70	0	10	0
Very low	2	0	0	0	10	0	0	0	0
	1	0	0	0	0	0	0	0	0
Total	1 - 2	0	0	0	10	0	0	0	0
Number in %		100	100	100	100	100	100	100	100
Mean of level in sten		3,40	5,70	4,10	5,10	3,90	6,60	5,60	5,60

Annex. 3. Dispertion of results of syndrome aggression at coaching the Aikido; scales (I - VIII)/ N = 20

Results of level of syndrome aggression at coaching the Aikido	Sten	Scales of Z.B. Gas' The Questionnaire of syndrome aggression							
		I	II	III	IV	V	VI	VII	VIII
		%	%	%	%	%	%	%	%
Very high	10	0	0	0	10	0	0	0	0
	9	0	0	0	0	0	0	0	10
Total	9 - 10	0	0	0	10	0	0	0	10
High	8	10	20	10	0	0	0	10	0
	7	20	40	0	0	0	50	0	0
Total	7 - 8	30	60	10	0	0	50	10	0
Average	6	0	0	10	10	10	20	10	30
	5	10	40	10	40	60	30	20	60
Total	5 - 6	10	40	20	50	70	50	30	90
Low	4	50	0	30	10	0	0	40	0
	3	10	0	40	20	30	0	20	0
Total	3 - 4	60	0	70	30	30	0	60	0
Very low	2	0	0	0	10	0	0	0	0
	1	0	0	0	0	0	0	0	0
Total	1 - 2	0	0	0	10	0	0	0	0
Number in %		100	100	100	100	100	100	100	100
Mean of level in sten		5,00	6,40	4,30	4,60	4,50	6,20	4,60	5,70

Annex. 4. Dispertion of results of syndrome aggression at coaching the Boxing; scales (I - VIII)/ N = 20

Results of level of syndrome aggression at coaching the Boxing	Sten	Scales of Z.B. Gas' The Questionnaire of syndrome aggression							
		I	II	III	IV	V	VI	VII	VIII
		%	%	%	%	%	%	%	%
Very high	10	10	30	0	10	20	40	10	10
	9	0	0	0	0	0	10	30	30
Total	9 - 10	10	30	0	10	20	50	40	40
High	8	10	30	30	0	20	10	20	10
	7	20	40	20	0	10	10	0	20
Total	7 - 8	30	70	50	0	30	20	20	30
Average	6	0	0	20	30	20	20	20	10
	5	20	0	20	50	20	10	20	20
Total	5 - 6	20	0	40	80	40	30	40	30
Low	4	30	0	10	0	0	0	0	0
	3	0	0	0	10	10	0	0	0
Total	3 - 4	30	0	10	10	10	0	0	0
Very low	2	10	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0	0
Total	1 - 2	10	0	0	0	0	0	0	0
Number in %		100	100	100	100	100	100	100	100
Mean of level in sten		5,60	8,20	6,40	5,60	6,80	8,10	7,50	7,50