

The association of sport and violence, aggression and aggressiveness – prospects for education about non-aggression and reduction of aggressiveness

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Abstract

Contrary to declared concept of Olympism, sport is often a carrier of unjustified violence and even extremely severe aggression. In a global scale, the media, especially the electronic one, is the main entity promoting aggressive behaviour. The aim of this survey article is to present three sets of issues, being basic premises for rational orientation of research and development so that regardless of promoting the concept of Olympism, sport could serve as a basic mean of permanent education about non-aggression and reduction of aggressiveness for current and future generations, especially children and the adolescents:

1. Lack of system countermeasures against the phenomenon of non-adequate use of the terms "violence", "aggression", "aggressiveness" directly in the field of sport and social activities remaining in close relationship with sport;
2. Real threat of increasing aggressiveness, especially of children and adolescents, by uncontrolled education about violence and aggression with the use of subjects mentioned in the first item;
3. The possibility to use sport to reduce interpersonal aggression and aggressiveness through competent use of methods and means specific to widely understood sports activity.

The collection of papers analysed in this article has been mainly acquired from the electronic literature databases (Ebsco, Medline, PubMed, Scopus). They were issued until 2013 and in various contexts raise the question of aggression in relationship to widely understood sport. For this purpose, the following key words has been used: "aggression", "sport", "reduction of aggressiveness". Among applied and recommended ways to reduce aggressiveness the most effective ones include cognitive-behavioural methods, which comprise certain exercises and specific martial arts (judo, taekwondo) as a key component.

Key words: cognitive-behavioural methods · electroconvulsive therapy · judo · pharmacotherapies · taekwondo

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INTRODUCTION

Behaviour – events, to which all living creatures are subjected (not only people), which are reactions to external or internal stimuli. Behaviour can be expressed with movement or stillness performed intentionally or unintentionally [20, p. 283].

Action – intentional, deliberate and arbitrary behaviour of people. If we assume that the purposefulness of the action is related to conscious and free behaviour, it is sufficient to state that an action is an intentional behaviour. Unintentional, involuntary would not be referred to as an **action**, even if the subject comes closer to more favourable or desired state [20, p. 56-59].

Discipline – noun “(...) 3.a particular field of activity within a wider context, e.g. the discipline of javelin within athletics or of the parallel bars within gymnastics” [137]

Sport discipline – form of competition governed by principles in which the results obtained by an athlete are subject to classification [31, p.11].

The knowledge society is a formal priority of European integration. However, worldwide (global) electronic media lead in day-to-day promotion of violence and aggression in all possible manners – from cartoons to real bloody fights of contemporary gladiators locked in cages. Officially, it is referred to as the *Mix Martial Arts (MMA)* or in more sophisticated words the compilation of martial arts. This constitutes a blatant semantic misuse of the term “martial arts”. What is more, contradiction of humanistic and educational values of martial arts and depreciation of intention and authority of its most outstanding founders such as professor Jigoro Kano (judo), master Gichin Funakoshi (karatedo), master Moïhei Ueshiba (aikido) and master Choi Hong Hi (taekwondo) [1].

The essence of some sports is nothing but the use of controlled violence against competitors or animals involved in sports fight. On one side, it is a relic of the Olympic Games from the Homer era (combat sports, horsemanship) [2] and on the other, a relic of development of one-to-one games and team games in modern period. Some disciplines condone violence (rugby, hockey, handball, football, etc.), other prohibit (basketball) or impose significant limits on it (volleyball, racquets sports).

Leaving aside the issue of overt promotion of aggression by the MMA and related gladiator fights, it is difficult not to notice a tendency towards greater tolerance for violence and aggression in sport, even in disciplines and events which formally do not provide for direct contact of sportsmen during competition. Aggressive behaviour is greatly intensified by people from their immediate and further surroundings such as coaches, fans, media owners, especially of electronic ones (what is hardly provable in a direct manner), sport commentators (what can be proven empirically or by common observation [3-5]), sponsors, etc. [6-12].

The aim of this survey article is to present three sets of issues, being basic premises for rational orientation of research and development so that regardless of promoting the concept of Olympism, sport could serve as a basic mean of permanent education about non-aggression and reduction of aggressiveness for current and future generations, especially children and the adolescents:

(1) lack of system countermeasures against the phenomenon of non-adequate use of the terms “violence”, “aggression”, “aggressiveness” directly in the field of sport and social activities remaining in close relationship with sport;

(2) real threat of increasing aggressiveness, especially of children and adolescents, by uncontrolled education about violence and aggression with the use of subjects mentioned in the first item;

(3) the possibility to use sport to reduce interpersonal aggression and aggressiveness through competent use of methods and means specific to widely understood sports activity.

METHODS

The collection of papers analysed in this article has been mainly acquired from the electronic literature databases (Ebsco, Medline, PubMed, Scopus). They were issued until 2013 and in various contexts raise the question of aggression in relationship to widely understood sport. For this purpose, the following key words has been used: “aggression”, “sport”, “reduction of aggressiveness”. The collection has been expanded by papers acquired from the library resources belonging to Polish universities and the author.

RESULTS

1. Inadequate use of the terms „aggression”, „violence” and “aggressiveness” in the field of sport and social activities remaining in close relation with sport

The term „aggression” is directly defined in psychology, praxeology and international law.

Elliot Aronson, a social psychologist, emphasizes that aggression is a well-known phenomenon but yet there has not been established a commonly accepted psychological definition of “aggression”. He further argues that it is a process, i.e. the course of successive connections, casually connected changes, making up successive stages, phases of individual’s activities and believes that the act of aggression can be defined as a behaviour aimed at causing damage or pain [13]. Other psychologists define aggression in a very similar way [14-17]. The emphasis placed on intention of action is a common element.

The underlying dilemmas associated with defining this concept constitute the subject of research in psychology. In fact, psychology examines both intentional and unintentional human behaviour. Therefore, while referring to the intention of an action, it always concerns the emphasis of intentional behaviour, i.e. the action. Not every act of unintentional damage (harming others) can be qualified as aggression.

Such dilemmas do not arise in case of defining the term “aggression” in praxeological sense. Unfortunately, praxeology – the science of efficient action – is not commonly known, even though the first edition (1955) of a fundamental reading on praxeology written by Tadeusz Kotarbiński entitled *A Treatise on Good Work* [18, this reference concerns the seventh edition] has been translated into the following languages: Czech, English, German, Japanese, Russian, Serbo-Croatian. This complicated concept falls, however, outside of the scope of this paper. Nevertheless, it is crucial to mention that global political barriers (namely, a long period of the Cold War, when Kotarbiński was writing modern praxeology behind the Iron Curtain) had in fact been holding up the sustainable development of science [19].

Aggression in a praxeological meaning is defined as “a start of destructive fight or moving from objective arguments to those distressing the opponent in a verbal dispute” [20, p.12].

In terms of international law “aggression” is defined as an armed attack made by one country on another [20]. Paradoxically, there is a known case of short-term armed conflict between Salvador and Honduras in 1969 related to the subject of this paper. A term “The Soccer War”, which has been created by Ryszard Kapuściński [21] and circulated by mass media, is derived from the belief that the war outbreak was caused by Honduras’ 0:3 defeat on 15 June 1969 during the World Cup qualifiers.

“Aggressiveness” forms the basis of aggressive actions (i.e. intentional actions). According to Didier [22], Sigmund Freud was the first scientist who isolated the term “aggressiveness” and attributed it a negative meaning by making an association with rape, destruction – “a tendency to manifest offensive attitude, to attack (Lat. *aggredi* – approach, join: attack)”.

Within the scope of psychology and praxeology [20,23], aggressiveness can be defined as a human characteristic manifesting itself in inclinations to hurt others, to destructive behaviour.

In praxeological sense a somebody is aggressive, when they introduce parts of fight to organizational interaction, treating people with whom they come in contact as enemies and trying to distress them. In other words “aggressive” means virulent, truculent, attacking [20, p. 12]. While substantiating this definition Pszczołowski [20] refers among others to Vernon’s argumentation: «*In mob violence the members of the mob*

are encouraged by one another to perform aggressive and destructive acts which they would never dare to do singly. Even the opportunity to talk to other people who have been offended by the behaviour of a superior may produce a rise in hostility to him. This is especially likely to happen if the people are well known to one another» 24, p. 64]. The term “violence” appears in the above-mentioned argumentation.

In fact, psychologists (Aronson [13] and Zimbardo [14], among others) use the terms “aggression” and “violence” interchangeably as synonyms. However, it can be reasonably determined that each aggressive action directed against an individual or a team is a form of violence but not vice versa. Violence is a broader term than interpersonal aggression. Janusz Surzykiewicz in a 20-page chapter entitled “Problems in the definitions of aggression and violence”, an important monograph concerning these phenomena in school [25, p.13-32], devotes more space to the definition of violence (both phenomena are analysed mainly from the socioecological perspective). He makes a distinction between violence in narrow and broad sense. Moreover, he refers to terms *bullying* and *mobbing* and emphasizes the issue of “conceptual diffusion” of the terms “aggression” and “violence”. Surzykiewicz claims that in the last two decades the term *bullying* is more and more frequently used if it concerns interpersonal forms of aggressive behaviours (corporal and mental) with a clear indication of one-sidedness of a damage to weaker party. Category of *bullying* is not, however, assigned to the interaction of relatively balanced forces as it occurs during a quarrel and fight [25].

Andersen says otherwise: „Violence is a subtype of aggression, generally used to denote extreme forms of aggression such as murder, rape, and assault. All violence is aggression, but many forms of aggression are not violent” [26, p. 163]. However, we remain of the opinion that extreme form of “violence” is “aggression”, but not vice versa.

Praxeologists also understand “violence” in a broad or narrow sense. Jarosław Rudniański [27] refers to a broader understanding of violence while explaining both the nature of escalation and camouflage of violence and the relationship between camouflage of violence and camouflage of power as well as while making a distinction between various types of violence, i.e. physical and psychological in non-armed fight or overt, moral, organizational, structural. In a narrow sense and according to the aim of this paper the following definition is relevant here: “violence” in

praxeology is defined as physical pressure (physical force) or use of chemical, electrical, etc. stimuli, which results in subject being thrown into undesired situation and becoming an object of somebody's action [20, p.194].

Widespread lack of proper understanding of the terms "aggression", "violence" and "aggressiveness" in sport leads not only to absurdity in the course of describing sports events but also consequently favours intensification of numerous pathological phenomena. Everyone who says that "a given skier drove slalom aggressively" or "X made an aggressive jump", etc. compromises oneself [1,5]. A sport commentator, coach or an outstanding sportsman compromise themselves, especially when expecting success of a basketball team with which they identify themselves, as they say sentences such as: "they have to play more aggressively", "more aggression in defence and attack", etc. In basketball corporality is protected in a special way and aggression is not only a factor to be excluded from a match, e.g. after touching a competitor's hand for five times, who is putting the ball in the basket.

Unfortunately, the nature of such compromise is understood by relatively few participants of a sport event since provoking aggression is common in mass media and there is no justified protest in the media. On the contrary, this negative message given by verbal comments during sport event is enhanced by headlines apart from the content – press releases (paper and electronic versions) on finished matches. Until recently, tennis has been referred to as a "white sport". Then, what message would the authors of texts entitled "X smashed Y", "X massacred on the tennis court W", etc. like to send to the supporters of this sport? This narrative is a clear proof that many entities prompting sport in public space have possibility to satisfy their needs of aggression and violence in various manners. The phenomenon of modern gladiatorial contests or gladiatorship relates not only to Mix Martial Arts but also in higher and higher degree to the entire sport, especially the professional one [1, 3-9, 28-30].

Social approval for such semantic deformations (the phenomenon has a long story) is a peculiar paradox. Especially the terms "aggression" and "aggressiveness" in sport commentary have acquired two opposite meanings – sometimes a positive one (when it is supposed to show sympathy of a commentator with the success of an athlete or a team) and sometimes a negative one (after yellow or red card, penalty kick, temporary exclusion from the game and other

sanctions). This is an astonishing practice which has revived the idea of Olympism.

The idea of Olympism is based on the rule of *fair play* and this term is, especially in sport, an obvious contradiction of aggression. The Olympic flag composed of five interlocking rings with equal diameter on white field symbolize the union of five continents and meeting of athletes from around the world during cyclic Olympic Games. What is more, it is the most recognizable symbol for most people. There is no evidence and empirical justification that the flag and other Olympic symbols form associations with "aggression" and "aggressiveness".

There is no empirical evidence to the veracity of the hypothesis that permanent attribution of a positive meaning in the public space to the terms "aggression" and "aggressiveness" in the context of expected sport success causes gradual change in social perception of those terms and, as a consequence, more and more people accept the need to be aggressive also in every other action (this hypothesis has been formulated by Roman Maciej Kalina and Jarosław Klimczak as a part of broader research on limiting interpersonal aggression through sport especially among children and adolescents).

The hypothesis is even more important because "success" (political, economic, scientific, professional, medial, etc.) has today become one of the most desired states of affairs of given units, teams, nationalities and transnational interest groups. Paradoxically, due to its popularity and simplicity of communication, sport has become one of the most important promotional means to aggression and violence.

Kalina and Klimczak in an easy manner have pre-verified the primary topic of this hypothesis during the first phase of the above-mentioned project [1]. In September and October 2014 they conducted a one-day training course for sport animators working in lower secondary schools in all 16 Polish voivodeships (over 1,000 qualified teachers of physical education and/or sport coaches, 68% of which have declared over ten-year-long professional experience). After filling anonymous surveys, the course participants were asked a question whether aggression in sport is necessary. In each of 16 centres, they have generally answered "YES". They have been asked the same question after completing the course and this time they generally answered "NO". This simple experiment revealed a lifeblood of proper education. The multi-dimensional analysis of obtained empirical data

from this and other phases of interministerial (sponsored by several ministries of Polish government) research project entitled “limitation of interpersonal aggression through sport among children and adolescents” will enable precise verification of the part of hypothesis that speaks about more tolerance for positive meaning of the terms “aggression” and “aggressiveness” in the context of expected sport success.

2. Real threat of increasing aggressiveness, especially of children and adolescents, by uncontrolled education about violence and aggression also through sport

From the division and classification of sport disciplines it follows that only some of them permit a certain degree of violence. One of the newest division is the one developed by Zbigniew Naglak [31, p. 10-13]. It distinguishes five groups. According to him there are several sport disciplines where motor, cognitive or perceptive characteristics are dominant: 1) games (cognitive, perceptive); 2) games with a ball or a puck, etc. (cognitive, perceptive, motor); 3) shows (motor, cognitive); 4) direct confrontation (perceptive, cognitive, motor); 5) races (motor, perceptive, cognitive) [31, p. 11]. The highest degree of mutual controlled violence among athletes is permissible in group 4 (direct confrontation, including all combat sports) and 2 (games with a ball or a puck, etc.), whereas violence against animals in group 3 (shows) and 5 (races).

In the previous part of this review, it was emphasized that there is a high social pressure to attribute positive meaning to the terms “aggression” and “aggressiveness” in sport. Therefore, increasing degree of social acceptance for even more aggressive actions especially in group 4, i.e. combat sports, and group 2 must be taken into account. No great attention is necessary to conclude that currently in football matches a constant element during fight for the ball is to strike competitors with elbows with a high degree of tolerance for such actions by referees. To conclude this section, we would like to heavily emphasise that neither Mix Martial Arts nor corrida meet the formal definition of sport.

Originally, when the phenomenon of aggression started to be researched more often, there was a well-grounded conclusion that in the literature there is no uniform opinion on the influence of sport on counteracting aggression and aggressiveness. The review of literature on the relationship between sport and aggression in most cases reveals that practicing sport rather promotes aggression and teaches

on the subconscious level that acts of aggression are acceptable mean to achieve the desired goal [32-39]. Conservative approaches to research on “sports aggression” focused on psychodynamic and personality variables or on environmental stimuli [40, 41].

One of the first studies on the origin of aggression were conducted by scientists working on the theory of instinct and drive. Their general conclusion is as follows: aggression is a behaviour that derives from the nature and is externally stimulated [42-44]. Sports implications for both perspectives are clear. Because the phenomenon of frustration is ubiquitous in every society, the theorists of both approaches recognized the participation in sport as a kind of a “safety valve” and a way to release aggressive energy in a socially acceptable way [45-47]. Some of contemporary social psychologists and sociologists accept the view that that are environmental stimuli, but not instincts, that play a dominant role in releasing and enhancing aggressive behaviours [13, 14, 48], whereas frustration emerges as a result of effort aimed at stopping somebody’s actions to achieve own goal [49]. Sociologists and psychologists usually claim that such factors as modelling, enhancing and conditioning are an incentive to release “sports aggression” [50, 51]. According to theorists of social sciences, a unit adopts standards and conventions of a group through processes of conditioning, enhancing and modelling. Therefore, it is believed that an attempt to understand and assess aggressive behaviours of an athlete results from factors such as: coach influence, fan expectations and behavioural modelling of other athletes, including colleagues from the team and competitors [40].

Alternative approach

Currently, there is sufficient empirical evidence available to conclude that sport, especially as a collection of all possible forms of human physical activity, is in a theoretical sense a neutral mean either to increase or reduce human aggressiveness. How sport will be used depends mainly on people indirectly and directly participating in those forms of activity, when the focus is placed on competition. The role played in this competition (athletes, coach, spectator, commentator, organizer, etc.) sometimes determines whether acts of aggression occur and escalate also outside sport combat environment (e.g. previously mentioned Soccer War) and sometimes that sports becomes a successful mean of therapy used to reduce human aggressiveness.

This approach, conventionally referred in this paper to as an alternative one, is somehow reflected in the definition of aggression provided by the International

Society of Sport Psychology (ISSP), which is worded as follows: aggression is an activity of aggressive stimulus (physical, verbal or expressed by a gesture) of one person directed towards another one [52]. Scientists working on this phenomenon (i.e. the context of sports behaviour) distinguish two categories of aggression: instrumental and hostile [6, 53, 54]. Instrumental aggression can be exemplified with a situation when a hockey player blocks his opponent in order to capture a puck or when an American football player charges (makes an attack) in order to advance down a field. Researchers claim that instrumental aggression is acceptable in sport because it is not accompanied by direct intention to harm other player [53, 55]. Hostile aggression can be associated with a behaviour which aims at harming other person. This type of aggression is always linked with anger [53]. Recent studies also indicate that according to its authors, sports activity may justify certain aggressive acts and participation in sports competition increases the number of aggressive acts both in boys and girls regardless of the outcome of the competition [36].

These interpretations of aggression in sport substantiate the hypothesis formulated by Kalina and Klimczak.

The results of several studies revealed that even sports programmes implemented by coaches working in sports clubs are frequently focused solely on competition what as a consequence enhances aggressive behaviours among players [32, 35-38] and subconsciously teaches that acts of aggression are an acceptable mean to achieve desired goal [33, 34]. According to Baar and Wubbels [39] more common occurrence of aggression among peers in sports clubs is caused by two factors: first of all, competitors must constantly enhance their social position among peers in sports groups, which are unstable and modified (e.g. players replacement) almost each year; secondly, sports clubs have poorly developed structure and can be characterized by lower supervision when compared to schools.

Some scientists have shown that peer aggression is constant regardless of the type of situational context but the results of the studies were not focused on various sport disciplines [39, 56, 57].

It was also found that sport spectators become more aggressive during competitions and immediately after they are finished. Bloom and Smith [58] demonstrated that violence occurring during hockey games frequently indirectly affects fans' mentality and afterwards it is manifested in form of aggression acts in other social gatherings. The International Society of

Sport Psychology has identified the fact that aggression on sports field and outside it became a social problem and issued appropriate recommendations aiming at reduction of aggression in sport [8]. Gardner and Janelle [59] have asked sportsmen and people not engaged in sports activities to assess the legitimacy of overt acts of aggression committed by competitors, who are involved in contact and non-contact sports. They have found out that opinions justifying such behaviours are inversely proportional to moral justification of respondents, i.e. people who justified those acts had less developed sense of moral reasoning.

Studies on intensification of aggression in sports clubs have been compared with school environment. When compared with other activities in school, physical education lessons or sports classes are mainly focused on the development of physical features, i.e. children learn how to be faster and stronger though participation in sports activities, which are often oriented towards tough competition and organized according to the principle to "win at any cost" [32]. Sports clubs involve less supervision, therefore it is more difficult to maintain the position in a peer group when compared to relatively stable class environment [60]. This fact is confirmed by studies, which have revealed that violence acts in school environment occur more frequently in places with no supervision of teachers as for example: sports fields, playgrounds, corridors and canteens [56, 61].

The relationship between allowable physical contact during sports competition and intensification of aggressive behaviours

The intensification of aggression during sports competition depends largely on the type of discipline (i.e. on the extent of approval for controlled violence what has been mentioned at the beginning of this section). Some scientists have proven that approval for even more aggressive behaviour is higher in sports conventionally referred to as "high-contact" sports as compared to medium- and "non-contact" sports [62, 63]. Competitors involved in non-contact sports are usually less repressive and aggressive in the environment of sports clubs due to lack of direct physical contact between players [60]. Competitors involved in contact team sports have to learn to cooperate with their team partners as well as to compete for as best position in a team as possible. In other words, according to Hawley [64]: they must possess abilities to balance between two conducts; interacting with peers in a group and "being better than other team players". Both conducts may be effective in controlling their own potential of aggression [64].

The form of participation in combat sports significantly differs from the one occurring in team sports even though they undoubtedly belong to the category of high-contact sports. Therefore, people who engage in combat sports may be less cooperative in collaboration with a partner due to reduced need to take into account other competitors [39]. The prevalence of peer aggression as well as pro-social behaviour and resource control strategies have been investigated by Baar and Wubbels [39] in a group of 1425 Dutch children participating in combat sports and other contact sports. The results have not confirmed the truthfulness of the theory about escalation of aggression in case of children participating in combat sports. Among tested children, who demonstrated increased aggressiveness, some have revealed pro-social tendencies, whereas others have not. The majority of studies indicate, however, that pupils who practice combat sports and focus on tough competition (e.g. in a form of sparring) demonstrate greater tendency to increase their own aggressiveness [65–68].

Combat sports' trainings do not have to be oriented at competition (e.g. in a form of sparring). A large group of people practice combat sports and martial arts in order to learn self-defence or physical and inner improvement (mental, spiritual) [69]. Exercises targeted at self-defence stimulate aggression and violence to a significantly lesser degree in comparison with forms oriented at tough competition. Elling and Wisse [70] have demonstrated that participants of martial arts trainings have shown relatively more pro-social behaviour than participants of other contact sports. Such conjectures are also confirmed by studies conducted by Reyes and Lorant [71, 72], who have discovered that only children practising judo did not present more aggression than children practicing other forms of sport. Kharkan et al. [54] have demonstrated that volleyball, basketball, taekwondo and karate competitors are not statistically significantly different in terms of aggressive behaviour.

The relationship between sports aggression and instrumental aggression, hostile life aggression and life assertion. The impact of gender factor

The above-mentioned Kharkan et al. [54] have determined higher intensification of aggression among boys than girls, who train one of the following sports: volleyball, basketball, taekwondo, karate. On the other hand, Keeler [11] have studied instrumental, hostile and life aggression (presented in everyday life) and a search for recognition (life assertion) among females and males practicing contact and non-contact sports. He has demonstrated lack of differences among

studied types of aggression in contact and non-contact sports, whereas gender has slightly differentiated the relationship between life aggression and life assertion. Based on the example of basketball players, Bredemeier and Shields [40] have revealed that moral reasoning is significantly correlated with occurrence of sports aggression. Their results provide empirical support for a view that studies on aggressiveness of athletes should be continued and developed also on the level of competitors' moral plane.

According to Shields and Bredemeier [73], engagement in sport is associated with lower levels of moral reasoning. When a competitor acts and is governed by a lower level of moral reasoning, moral choices are performed in an egocentric manner and an athlete focuses on self-interest and making self-serving compromises. Moral reasoning maturity is inversely proportional to aggressive tendencies among various types of athletes, whereas higher levels of moral sensitivity correspond to reduced occurrence of aggressive behaviour [75].

Moral reasoning of an athlete and abilities necessary to form moral judgements are closely related to social context. During competitions and trainings competitors interact with people who play some roles in their sports life (parents, coaches, team members), whose values, beliefs, habits and behaviours significantly affect their attitude, decisions and deeds [75]. Particularly in sport teams, there are some collective standards that affect deeds and attitude of competitors [76]. While supporting and emphasizing the legitimacy of the occurrence of moral atmosphere in sport, Stephens and Bredemeier [77] have revealed that the fact whether female football players resort to unfair game depends on their conviction about the same unfair behaviour of other team players. On the other hand, previous papers in general psychology suggest that parents influence the intensification of aggressive behaviour in children as well as their moral maturity [78, 79]. Other studies on this subject also revealed the relationships between aggression and parental influence. For example, Stuart and Ebbeck [80] have demonstrated the influence of differences in social approval shown by mothers, fathers and coaches for moral behaviour of their children by stating that mothers have the highest influence on moral development of younger children, whereas peer approval is more significant in the case of adolescents and young adults.

Gender is another factor that may diversify behaviour. There is a quite common view that society expects women and men to accept different behaviours arising

from sexual dimorphism. Such stereotype implies that a man should be strong, independent, athletic, whereas a woman should be calm and obedient [81, 82]. Even though psychologists assume that men are more violent than women, the results on sex differences are not clear in this regard.

Guivernauand and Duda [75] have not identified any significant differences in aggressive tendencies between women and men. On the other hand, Maxwell et al. [83] point out the relationship between aggressive behaviours and gender, which is more significant in the case of men. Breimeier and Shields [40] have found no significant differences in number of fouls committed by female and male basketball players, who according to their coaches were the most aggressive team members. In contrast, Bredemeier together with another research team [84] have shown that there is higher number of aggressive behaviours among men in comparison to women as for all types of aggression studied by them. According to studies conducted by Hawley [64, 85] and Baar and Wubbels [37] boys may behave more frequently in repressive-aggressive manner, whereas girls often take pro-social roles [86, 87]. Male personality traits could have shaped positive attitude to use aggression in sports clubs as well as other forms of social context such as school [35, 36, 38].

It is socially expected from boys to undertake repressive-aggressive and Machiavellian roles more frequently than girls [88]. This observation is based on the theoretical knowledge according to which peer aggression among boys is related to antisocial personality traits [89, 90] and therefore it would be more common as for boys in certain situations. Girls, on the other hand, may more easily adopt the features of aggressive behaviour when they change social environment [91]. Higher level of aggression presented while practicing contact sports by boys towards girls was observed by Baar and Wubbels [37]. Other studies also support this hypothesis pointing out that boys are more oriented at competition than girls and participate more often in trainings oriented at tough competition [92-94].

In summary of this part of the paper, we will as well refer to the opinion of adolescents from nine Polish voivodeships, who participated for a year in a programme for counteracting aggression and pathology among children and adolescents through sport. The number of respondents, who declared that rarely or never had witnessed aggressive behaviour in their surroundings, increased only by 6%. The number of

pupils who claimed that a reduction in amount of aggressive acts had occurred since a sports field had been opened at school, increased from 7% to 11%. The number of pupils who believe that sport reduces aggression increased from 37% to 46%, whereas that sport encourages good behaviour from 21% to 31% [95]. This is, however, only a conviction not a result of clinical studies. One year of educational influence is a long period, therefore if reduction of aggressiveness was an inherent property of sport, regardless of the specific nature of physical activity, the effect measured even with those simple indicators would be characterized by high and statistically significant difference of proportions of declared intersubjective insights.

Regardless of methods and research tools used, the results of the observation support the legitimacy of the “alternative approach” presented in this paper: *in a theoretical sense sport is a neutral mean either to enhance or reduce human aggressiveness (the way it will be used depends on people who directly and indirectly participate in those forms of sports activity, when the emphasis is placed on the competition)*. Therefore, therapeutic potential of sport may be used most of all by qualified specialists.

3. The possibility to use sport in order to reduce interpersonal aggression and aggressiveness through competent use of methods and means specific to widely understood sports activity

Therapeutic potential of sport has become more obvious after analysing limited influence of pharmaceutical methods and electroshock on reduction of aggression.

Pharmacotherapies

Since – as convincingly argued by Pine and Cohen – “The term «aggression» is defined as behaviour intended to harm another individual” [96, p. 184], the concept of *therapeutics of aggression* (used in a very important article written by those authors entitled *Therapeutics of Aggression in Children*) is at odds with semantic order and logic of therapy. The sense of treating the effects, i.e. aggression, is doubtful. Regardless of the origin of aggressive behaviour, the common characteristic of everyone who attacks other people with no reason is aggressiveness (the term has been defined at the beginning of the paper). Therapeutics of aggressiveness makes sense. Whatever the semantic dilemmas are, we would like to emphasize that the study of Pine and Cohen provides an honest review of the effects of drug therapy in children (individuals below the age of 18) with mental illness. Discussion

of the results of 25 scientific observations and experiments had been conducted in the broader context of current knowledge (before 1999) on the clinical characteristics and multimodal treatment of paediatric aggression. To conclude the review the authors would like to point out that various pharmacological treatments can reduce aggression in children. However, given the role of both biological and social factors in the increase of aggression, multimodal treatment may ultimately provide maximal benefits [96].

Buitelaar et al. [97] suggest that risperidone (an atypical antipsychotic drug that blocks dopamine as well as serotonin receptor systems) may be effective for severe aggression in adolescents with disruptive behaviour disorders and subaverage intelligence, and these results are consistent with reports suggesting its effectiveness for treating severe aggression in adolescents in general.

Tyrer et al. [98] measured the effects and cost-effectiveness of haloperidol, risperidone and placebo on aggressive challenging behaviour in adults with ID. There were no significantly important benefits conferred by treatment with risperidone or haloperidol, whereas treatment with these drugs was not cost-effective. A good complement to the conclusions to those studies are concerns expressed by Tsiouris [99] on the overuse of antipsychotics in persons with ID. Tsiouris concludes that: the majority of people with ID and aggressive behaviours are not diagnosed with psychotic disorder and there is lack of strong evidence supporting the anti-aggressive properties of the antipsychotics. The overuse of antipsychotics in this population may be explained by the old, faulty notion that aggressive behaviour in people with ID is mostly associated with psychotic disorders. However, final conclusion is the most interesting: matching the treatment with the variables contributing to the aggressive behaviours, seeking a long-term rather than a short-term solution and avoiding the promotion of only one type of treatment for all types of aggression might change the current practice and improve the quality of life for many persons with ID [99].

Willner [100] summarizing current understanding of the neurobiology of aggression and within this context the evidence base for the pharmacotherapy of aggressive challenging behaviour by people with intellectual disabilities (ID) emphasizes three issues: there have been relatively few controlled trials of pharmacotherapy for aggression in people with ID; their outcomes have usually been negative with the possible exception of risperidone; there is no reliable evidence

that antidepressant, neuroleptic or anticonvulsant drugs are effective treatments for aggression by people with ID.

Electroconvulsive therapy (ECT)

Aggression and self-injurious behaviours (SIB) in some patients with autism and other forms of pervasive developmental disorders are not well understood, also treatment interventions are often ineffective [101, 102]. SIB is a relatively common phenomenon among severely retarded persons and involves various repetitive behaviours resulting in tissue damage. Recently electroconvulsive therapy (ECT) has become a recommended method. Wachtel et al [103] conclude that self-injury may represent a symptom of catatonia as a repetitive and purposeless motor activity that may be associated with other catatonic, affective or psychotic symptomology. Recognition of this option should invoke a lorazepam trial at adequate dosages, followed by consideration of ECT if the former is ineffective. Judicious usage of ECT in the developmentally-disabled population with severe self-injury may afford a significant opportunity for recovery.

Moreover, there is evidence that in a certain case even acute course of electroconvulsive therapy may become effective. Extensive behavioural and medication interventions in both inpatient and outpatient settings had been ineffective, and the boy (11-year-old boy with autism) was at risk for acute physical injury and restrictive out-of-home placement [104]. Observation of all patients (n = 4) who received ECT in the context of self-injurious behaviour and aggression (SIB/AGG) with resistance to behavioural interventions, milieu therapy and pharmacotherapy from 2007 to 2011 provide empirical evidence for expected benefits [105]. Haq and Ghaziuddin [106] report here on two adolescent patients with autism who presented with severe aggression, one of whom also engaged in repetitive SIB. With ongoing treatment with maintenance ECT, dramatic reduction in aggression and SIB were noted, allowing both patients a reasonable quality of life in their own homes. Attempts to taper off ECT coincided with return of aggression symptoms, although not SIB.

Optimal effectiveness: Cognitive behavioural therapy (CBT) and elements of martial arts

Few experiments exist proving that only some forms of physical activity (including those distinguished as sport disciplines) used in appropriate manner may significantly reduce aggressiveness of young people entering adulthood. Moreover, properly applied they produce effect already after few month of training.

The most relevant methods involve practicing some combat sports and martial arts as well as the majority of team sports. In those sports the use of physical force directly on the body of the competitor is allowable or as in the case of basketball it is almost categorically prohibited. Therefore, leaving aside basketball, some level of violence is permissive but its contravention results in certain penalties including even a lifetime disqualification. This is a very important factor that imposes some discipline but at the same time current touchstone of respecting the principles of *fair play*. The frequency of conscious (often camouflaged) violation of this elementary principle of sport during training and tournament fights (matches) may constitute the simplest indication of aggressiveness, such as a certain category of games involving physical movement [1, 107, 108].

Methods used in reduction of aggressiveness through those forms of physical activity are referred to as *cognitive behavioural therapy*. Hofmanna et al. [109] in in-depth meta-analyses of CBT effectiveness have distinguished 17 disorder/population categories, including „Anger and Aggression”. As for this category Hofmanna et al. refer to two previous publications comprising meta-analytic reviews: Del Vecchio & O’Leary [110] and Saini [111]. The findings from these meta-analyses suggested that CBT is moderately effective at reducing anger problems. Findings from these reviews also suggested that CBT may be most effective for patients with issues regarding anger expression.

Broadly understood CBT comprise methods used in reducing aggressiveness and other forms of social maladjustment with the use of martial arts. Scientific literature on the subject is sparse. This proves that it is necessary for a therapist to possess suitable qualifications both in psychotherapy and martial arts as well as scientific abilities which would guarantee the correctness of the experiment and published results in a scientific publication.

Such criteria must have been fulfilled by ME Trulson as his publication written almost twenty five years ago entitled *Martial Arts Training: A Novel “Cure” for Juvenile Delinquency* (1986) is most frequently cited.

Trulson’s experiment

Trulson qualified to the experiment 34 high school students who were categorized as juvenile delinquents – identified by their scores on the Minnesota Multiphasic Personality Inventory (MMPI). The students received training under one of three

different protocols for 1 hour three times a week for a period of 6 months: group I received training in the traditional Korean martial art of taekwondo; group II training in a “modern” version of the martial art which did not emphasize the psychological/philosophical aspects of the sport as the Korean version did; group III served as a control group for contact with the instructor and physical activity. Group I students showed decreased aggressiveness, lowered anxiety, increased self-esteem, increased social adroitness and an increase in value orthodoxy. Group II students showed an even greater tendency toward delinquency than they did at the beginning of the study, a large increase in aggressiveness and generally opposite effects to Group I. Group III students showed no notable differences in any of the personality measures. These data suggest that training in the traditional taekwondo is effective in reducing juvenile delinquent tendencies [65].

Kalina’s experiment

The aim of eight-months experiment was to verify the following hypothesis: the complementary way of using the self-defence exercises, judo exercises, relaxation and concentration exercises and also intentional verbal actions (talks about ethics and agility aspects of behaviour in the situation of being attacked by particular people) provides the development of bravery even among the young people with higher level of aggressiveness. The hypothesis also states that realizing intentional defence preparation with the military standards creates the attitude that is right opposite to bravery (i.e., strengthens aggressiveness). Bravery was evaluated with the KS-4M projection test (English version is being published [112]).

Twenty three military cadets (experimental group) with highest level of aggressiveness have been selected (based on Bussa-Durkee questionnaire [113]) out of 58 who declared willingness to participate in judo training and/or self-defence training. Nineteen of them (aged 19.68) have completed the experiment. Trainings took place five days a week (from Monday to Friday) and lasted 90-120 minutes (average attendance amounted to 67%). Fifty seven military cadets from the same academic unit constituted a control group. The hypothesis proved to be correct. Experimental training resulted in reduction of aggressiveness of military cadets (before experiment 53% manifested very high and high aggressiveness, whereas 10% general propensity for violence; after the programme the proportions have reversed: 53% manifested very high and high bravery, whereas none manifested very high aggressiveness). The

CONCLUSION

conventional military training provided the following results: before training 7% of young men were very aggressive and 23% of them were highly aggressive, whereas 12% were prone to violence, while after 8 months the results amounted respectively to 12%, 31% and 15%.

Moreover, KS-4M test repeated after 8 months (three years after the experiment) provides empirical proofs that this type of CBT is a successful method in long-term reduction of aggressiveness in men from experimental group. Although, cessation of experimental training after two semesters resulted in weakening of therapeutic effect (near the end of the studies 50% of men revealed very high and high level of bravery, whereas 50% a propensity for violence and high aggressiveness), none of the military cadets revealed very high level of aggressiveness [114].

Syska's experiment

The observation concerned the effects of 66 trainings of modern gymnastic and dance forms involving elements of self-defence (twice a week for 60 minutes for 33 weeks) performed by young women. Similarly to the experiment involving cadets, this one lasted for two semesters. The attendance of 23 female students (from various faculties) from experimental group amounted to 92%. They additionally attended once a week a 90-minute physical education class (aerobic, games, gymnastics, bodybuilding). Students from control group ($n = 97$) did not take any additional physical activity besides physical education classes. Female students, who participated in experiment, significantly reduced their aggressiveness ($p < 0.05$) and increased their bravery ($p < 0.05$). However, they did not significantly lowered the level of fear. After the experiment they were statistically significantly ($p < 0.01$) less fearful than their peers from the control group [115].

Other relevant observations

The results of the study carried out by Kalina et al. [116] and conducted on a very large sample from the population ($n = 1281$) constitute an empirical confirmation of the truthfulness of the statements that the most suitable forms of physical activity that may reduce aggressiveness include some combat sports and martial arts as well as the majority of team sports. Among various social groups, people who practised combat sports highly respect the principles of *fair play* in the sports fight (3.1 conventional points on a scale from 0 to 4). In this ranking the third position is held by people training team sports (2.85 contractual points).

The results of the experiment described in this article concern students because appropriate intellectual level of the participant is a relevant factor. The basic premise for the efficacy of the use of CBT for people with increased aggressiveness is an intellectual standard. As a part of preventive measures, this method can be used in education for children and adolescents under the condition that a teacher will be suitably trained.

The experiment conducted by Trulson [65] revealed that students from “modern taekwondo” group who presented with increased aggressiveness and sense of fear should be directed to therapy. Even though the above-mentioned paper has been repeatedly cited in scientific journals, we have not found any criticism concerning this aspect. Although many results of observations, especially of the impact of contact sports on increase of aggressiveness, discussed in this review have been compiled after 1986, extensive scientific literature points since a very long time to contact sports and media as potential and factual sources of education to aggression and violence [40, 46, 47, 50, 51, 53, 55, 84, 117-122]. Trulson should have been aware of this fact, hence he should have anticipated training effect of “modern taekwondo” and the necessity of adequate therapy after completion of experiment.

The results of experiments conducted by Kalina and Syska have not so frequently been discussed in scientific literature available for a “global reader” as the result of experiment conducted by Trulson [65]. The monograph written by Kalina [114] and PhD thesis written by Syska [115] were published in Polish. This is an issue concerning the authors of numerous valuable papers which are published in native languages by local publishing houses. This phenomenon is accurately assessed by Barczyński et al [19] in the context of the need to break down barriers by scientists from the former Eastern Bloc in order to share important scientific achievements with a global recipient.

This review brings to attention another very important aspect of promoting combat sports and martial arts as means of optimal psychophysical, ethical and aesthetic development of children and adolescents as well as an attractive “sport of life”. To fulfil these conditions training sessions must be conducted by professionals with very high qualifications and impeccable ethical ethos.

Taking into account the highest scientific standards, including the *Impact Factor*, the subject of judo is the most frequently raised issue among papers on

combat sports and martial arts [30, 123]. However, when the analysis is focused on the content of those papers, there is a disproportion between the issues of effectiveness of training related to positive results in sports fight (physiology, biomechanics, motor control aspects, etc.) and theoretical and empirical argumentation that judo as well as combat sports and martial arts have high therapeutic value.

Available for a very long time, scientific knowledge that judo (immediately after swimming but similar to wrestling and karate) has the biggest impact on harmonious somatic development of adolescents [124]. The review of empirical effects provided by only one research team led by prof. Jagiełło proves that scientific papers focused on monitoring the development of motor abilities of young Polish judo athletes [125-127] as well as morphofunctional development of female [128] and male [129] Judo National Polish Team [130] have been periodically published since over a decade. A very interesting paper written by this team has been recently published. It focused on morphofunctional traits as prediction criteria of the sports level in subsequent stages of long-term women's judo training representative three groups: A – comprehensive training stage, 13-15 years, training experience 5.5±1.9 years, representatives of the Pomeranian voivodeship; B – directed training stage, 16-18 years, experience 7.2±2.5 years, representatives of Poland in

the juniors category; C – special training stage, age 25.2± 3.7 years, experience 14.2±4 years, representative of the Polish Olympic team [131]. Unfortunately, as it has been previously emphasized, papers on therapeutic (in a broad meaning) impact of judo on health, personal development of adolescents and creating of appropriate interpersonal relations do not even partially compensate for this disproportion [114,131-133].

Perhaps, the crisis of judo involving resignation from training during first year by a very large number of people [134] should be associated with attention of subjects directly responsible for education and promotion of judo (coaches, managers, sponsors) focused on sports success instead of on therapeutic values of this combat sport (with Olympic status) and the fact that it can influence comprehensive human development.

Education of specialists, who will be able to cope with this mission, is one of the most pressing social challenges. Change in social perception of a sport event is a necessary parallel action. There are some interesting initiatives to train referees in order to reduce mistakes during the most important matches [135]. Media remain the weakest link because unfortunately, aggression and violence are one of the most attractive and profitable products.

REFERENCES

- Kalina RM, Klimczak J, editors. Ograniczenie poprzez sport agresji interpersonalnej oraz poziomowi zażywania substancji psychotropowych (poradnik metodyczno-szkoleniowy dla nauczycieli). Warszawa: Ministerstwo Sportu i Turystyki; 2014 [in Polish]
- Homer. Iliad, Books 1-12. Oxford Classical Texts: Homeri Opera, Vol. 1. Greek and Latin Edition. Oxford University Press; 1920
- Szmajke A, Doliński D. Dwie strony medalu: pozytywne i negatywne psychologiczne skutki sportu. In: Tyszką T, editor. Warszawa. Psychologia i sport. Wydawnictwo AWF 1991[in Polish]
- Karolczak-Biernacka B. Agresywny sport w agresywnym świecie. Sport Wyczynowy 2000 (7-8): 5-13 [in Polish, abstract in English and in Russian]
- Kalina RM. O nieodpowiedzialnym używaniu pojęć „agresja” i „agresywność” w opisywaniu walki sportowej – czy kwestia niekompetencji semantycznych. In: Dziubiński Z, editor. Sport a agresja. University School of Physical Education in Warsaw & Salezjańska Organizacja Sportowa RP. Warsaw 2007: 157-165 [in Polish]
- Husman, BF, Silva JM. Aggression in sport: definitional and theoretical considerations In: Silva JM, Weinberg RS, editors. Psychological foundations of sport. Champaign, IL: Human Kinetics Publishers; 1984: 20-36
- Tenenbaum G, Stewart E, Singer RN et al. Aggression and violent in sport: An ISSP position stand. Sport Psychol 1997; 11: 1-7
- Kerr JH. The Role of Aggression and Violence in Sport. A rejoinder to the ISSP, Position Stand. Sport Psychol 1999; 13: 83-89
- Bushman BJ, Andersen CA. Media violence and the American public. Am Psychol 2001; 56: 477-489
- Doherty A. Violence in Sports: A Comparison of Gladiatorial Games in Ancient Rome to the Sports of America. Honors Theses. Paper 9; 2001
- Keeler LA. The Differences in sport Aggression, Life aggression, and Life Assertion among Adult Male and Female Collision, Contact, and Non-Contact Sport Athletes. J Sport Behav 2007; 30(1): 57-76
- Vanden Auweele Y. Challenging modern sports' moral deficit; towards fair trade, corporate social responsibility and good governance in sport. JCHS 2010; 5(2): 1-9
- Aronson E. The Social Animal. New York: W.H. Freeman and Company; 1992
- Zimbardo PG, Ruch FL. Psychology and life. Scott, Foresman and Company, Glenview, Illinois; 1977
- Frączek A. Czynności agresywne jako przedmiot studiów eksperymentalnej psychologii społecznej. In: Frączek A, editor. Studia nad psychologicznymi mechanizmami czynności agresywnych. Ossolineum PAN. Wrocław 1979: 13-25 [in Polish]
- Reber A. Dictionary of Psychology. New York: Penguin Books Press; 1985: 84-93
- Selg H, Mees U, Berg D. Psychologie der Aggressivität Göttingen. Hogrefe; 1988 [in German]
- Kotarbiński T. Traktat o dobrej robocie. Wyd 7. Zakład Narodowy Imienia Ossolińskich Wydawnictwo. Wrocław-Łódź. 1982 [in Polish, summary in English and Russian]
- Barczyński BJ, Graczyński M, Kalina RM. Barriers Restricting the Free Dissemination of Scientific Achievements: Own Experiences in Crossing Walls and Bridges J Hum Kinet 2009; 22(22): 7-14
- Pszczółowski T. Mała encyklopedia prakseologii i teorii organizacji. Zakład Narodowy imienia Ossolińskich Wydawnictwo. Wrocław-Gdańsk; 1978 [in Polish]
- Kapuściński R. The Soccer War. New York: Knopf; 1991
- Didier J. Dictionnaire de la philosophie. Librairie Larousse; 1984 [in French]
- Kalina RM. Przeciwdziałanie agresji. Wykorzystanie sportu do zmniejszenia agresywności. Polskie Towarzystwo Higieny Psychiczej. Warszawa; 1991 [in Polish, abstract in English]

24. Vernon MD. Human motivation. Cambridge; 1969
25. Surzykiewicz J. Agresja i przemoc w szkole. Uwarunkowania socjoekologiczne. Warszawa: Centrum Metodyczne Pomocy Psychologiczno-Pedagogicznej; 2000 [in Polish]
26. Anderson CA. Violence and Aggression. In: Kazdin AE, editor. Encyclopedia of psychology. New York & Washington D.C.: Oxford University Press and the American Psychological Association; 2000; 8: 162-169
27. Rudniański J. Kompromis i walka. Sprawność i etyka kooperacji pozytywnej i negatywnej w gęstym otoczeniu społecznym. Warszawa: Instytut Wydawniczy Pax. 1989 [in Polish]
28. Cynarski W, Litwiniuk A. Culture of violence on the example of boxing. Ido – Ruch dla Kultury 2007; 7: 84-95 [in Polish, abstract in English]
29. Dziubiński Z, editor. Sport a agresja. Warsaw: University School of Physical Education in Warsaw & Salezjańska Organizacja Sportowa RP; 2007: 157-165 [in Polish]
30. Kalina RM, Barczyński BJ. Archives of Budo Science of Martial Arts and Extreme Sports – A reason for this new branch journal. Arch Budo Sci Martial Art Extreme Sport 2013; 9: 1-9
31. Naglak Z. Kształcenie gracza na podstawowym poziomie [Education of a player on basic level]. Wrocław: University School of Physical Education; 2010 [in Polish]
32. Smoll FL, Smith RE. Coaches who never lose: Making sure athletes' win, no matter what the score (2nd ed.). Palo Alto, CA: Warde; 1995
33. Rowe CJ. Aggression and violence in sports. Psychiatr Ann 1998; 28: 265-269
34. Mintah JK, Huddleston S, Doody SG. Justification of aggressive behavior in contact and semicontact sports. J Appl Psychol 1999; 29: 597-605
35. Endresen IM, Olweus D. Participation in power sports and antisocial involvement in preadolescent and adolescent boys. J Child Psychol Psych 2005; 46: 468-478
36. Nucci C, Young-Shim K. Improving socialization through sport: an analytic review of literature on aggression and sportsmanship. Phys Educ 2005; 62: 123-130
37. Baar P, Wubbels T, Vermande M. Algemeen methodische voorwaarden voor effectiviteit en de effectiviteitspotentie van Nederlandstalige antipestprogramma's voor het primair onderwijs. Pedagogiek 2007; 27(1): 71-90 [in Dutch]
38. Coakley JJ. Sports in society: Issues & controversies (10th ed.). Boston: McGraw Hill Press; 2009
39. Barr P, Wubbels T. Machiavellianism in children in Dutch elementary Schools and sports clubs: Prevalence and stability According to context, sport Type, and Gender. Sport Psychol 2011; 25: 444-464
40. Bredemeier BJ, Shields DL. The utility of moral stage analysis in the investigation of athletic aggression. Soc Sport J 1984; 1: 348-357
41. Thirer J. Aggression. In: Singer RN, Murphey M, Tennant LK, editors. Handbook of research on sport psychology. New York: MacMillian Publishing Company; 1993: 365-379
42. Freud S. New Introductory Lectures on Psycho-Analysis. New-York: Morton; 1933
43. Dollard J, Doob LW, Miller NE et al. Frustration and Aggression. Yale University Press: New Heaven; 1939
44. Berkowitz L. Roots of aggression: A reexamination of the frustration-aggression hypothesis. New York: Atherton Press; 1969
45. Berkowitz L. The concept of aggressive drive. Some additional considerations. In: Berkowitz L, editor. Adv exp soc psychol 1965; 2: 301-329
46. Scott JP. Sport and Aggression. In: Kenyon GS, editor. Contemporary Psychology of Sport. Chicago: Athletic Institute; 1970
47. Smith MD. Aggression and the female athlete. In: Harri DV, editor. Women and Sport: A national research conference. University Park, PA: Penn State University; 1972: 91-114
48. Bandura A. Aggression: A social learning analysis. Englewood Cliffs, NJ: Prentice-Hall; 1973
49. Geen R, Donnerstein E, editors. Human aggression: Theories, research and implications for policy. San Diego, CA: Academic Press; 1998
50. Smith MD. Aggression in sport: Toward a role approach. J Can Assoc Heal Phys Educ Rec 1971; 371: 22-25
51. Silva J. Understanding aggressive behavior and its effects upon athletic performance. In: Straub W, editor. Sports Psychology: An Analysis of Athlete Behavior. Ithaca, NY: Movement; 1978
52. Tenenbaum G, Stewart, Singer RN et al. Aggression and violent in sport: An ISSP position stand. Int J Sport Psychol 1996; 27: 229-236
53. Silva JM. The perceived legitimacy of rule violating behavior in sport. J Sport Psychol 1983; 5: 438-448
54. Kharkan M, Andam R, Mehdizadeh R. The comparison of athletic aggression girl and boy athlete students. Int J Sport Stud 2013; 3(6): 594-598
55. Bredemeier BJ. The assessment of reactive and instrumental athletic aggression. In: Landers DM, editor. Psychology of sport and motor behavior II Pennstate HPER Series No. 10. The Pennsylvania State University Press; 1975: 71-84
56. Craig WM, Pepler DJ, Atlas R. Observations of bullying in the playground and in the classroom. Sch Psychol Int 2000; 21: 22-36
57. Hörmann C, Schäfer M. Bullying im Grundschulalter: Mitschülerrollen und ihre transkontextuelle Stabilität. Prax Kinderpsychol K 2009; 58: 110-124 [in German]
58. Bloom GA, Smith MD. Hockey violence: A test of cultural spillover theory. Sociol Sport J 1996; 13: 65-77
59. Gardner RE, Janelle CM. Legitimacy judgments of perceived aggression and assertion by contact and non contact-sport participants. Int J Sport Psychol 2002; 33(3): 290-306
60. Pellegrini A D, Long J D. A longitudinal study of building, dominance and victimization during the transition from primary school through secondary school. Brit J Dev Psychol 2002; 20: 259-280
61. Vaillancourt T, Brittain H, Bennett L et al. Places to avoid: Population based study of students reports on unsafe and high bullying areas at school. Can J School Psychol 2010; 25: 40-54
62. Bredemeier BJ, Weiss MR, Shields DL et al. The relationship between children's legitimacy judgments and their moral reasoning, aggression tendencies, and sport involvement. Sociol Sport J 1987; 4: 48-60
63. Conroy DE, Silva JM, Newcomer RR et al. Personal and participatory legitimacy of aggressive behavior in sports. Aggressive Behav 2001; 27: 405-418
64. Hawley PH. Prosocial and coercive configuration of resource control in early adolescence: A case from the well-adapted Machiavellian. Merrill Palmer Quart 2003; 49: 279-309
65. Trulston ME. Martial arts training: A novel 'cure' for juvenile delinquency. Hum Relat 1986; 39: 1131-1140
66. Nosanchuk TA, MacNeil MLC. Examination of the effects of traditional and modern arts training on aggressiveness. Aggressive Behav 1989; 15: 153-159
67. Zivin G, Hassan NR, DePaula GF et al. An effective approach to violent prevention: Traditional martial arts in middle school. Adolescence 2001; 36: 443-459
68. Twemlow SW, Biggs BK, Nelson TD et al. Effects of participation in a martial arts based antibullying program in elementary schools. Psychol School 2008; 45: 947-959
69. Theebom M, De Knop P, Vertonghen J. Experiences of children in martial arts. Eur J Sport Soc 2009; 6 (1): 19-35
70. Elling A, Wisse E. Vechtsport als bron van integratie's. Hertogenbosch: WJ.H. Mulier Institute Press; 2010 [in Dutch]
71. Reynes E, Lorant J. Do competitive martial arts attract aggressive children? Percept Motor Skill 2001; 93(2): 382-386
72. Reynes E, Lorant J. Effect of traditional judo training on aggressiveness among boys. Percept Motor Skill 2002; 94(1): 21-25
73. Shields DL, Bredemeier B J. Character Development and Physical Activity. Champaign IL: Human Kinetics Publisher; 1995
74. Bredemeier BJ. Children's moral reasoning and their assertive, aggressive and submissive tendencies in sport and daily life. J Sport Exercise Psy 1994; 16: 1-14
75. Guivernau M, Duda JL. Moral Atmosphere and Athletic Aggressive Tendencies in Young Soccer Players. J Moral Educ 2002; 31(1): 67-85
76. Stephens DE, Bredemeier BJ, Shields DL. Construction of a measure designed to assess players' descriptions and prescriptions for moral behavior in youth sport soccer. Int J Sport Psych 1997; 28: 370-390
77. Stephens DE, Bredemeier BJ. Moral atmosphere and judgments about aggression in girls' soccer: relationships among moral and motivational variables. J Sport Exercise Psy 1996; 18: 158-173
78. Harralson TL, Lawler KA. The relationships of parenting styles and social competency to type A behavior of children. J Psychosomatic Res 1992; 36: 625-634
79. Boyes MC, Allen SG. Styles of parent-child interaction and moral reasoning in adolescence. Merrill Palmer Quart 1993; 39: 551-570
80. Stuart ME, Ebbeck V. The influence of perceived social approval on moral development in youth sport. Pediatr Exerc Sci 1995; 7: 270-280
81. Maxwell JP. Anger rumination: an antecedent of athlete aggression? Psychol Sport Exerc 2004; 5: 279-289
82. Burton L, Hafelzi J, Henninger D. Gender differences in relational and physical aggression. J Soc Behav Personal 2007; 35(1): 41-50
83. Maxwell JP, Visek AJ, Moores E. Anger and perceived legitimacy of aggression in male Hong Kong Chinese athletes: Effects of type of sport and level of competition. Psychol Sport Exerc 2009; 10: 289-296
84. Bredemeier BJ, Weiss MR, Shields DL et al. The relationship of sport involvement with children's moral reasoning and aggression tendencies. J Sport Psychol 1986; 8: 304-318
85. Hawley PH. The ontogenesis of social dominance: a strategy-based evolutionary perspective. Dev Rev 1999; 19: 97-132
86. Zimmer-Gembeck MJ, Geiger TC, Crick NR. Relational and physical aggression, prosocial behavior, and peer relations. J Early Adolescence 2005; 25: 421-452

87. Closson LM. Aggressive and prosocial behaviors within early adolescent friendship cliques. *Merrill Palmer Quart* 2009; 55: 406-435
88. Geen RG, Donnerstein E, editors. *Human Aggression: Theories, Research and Implications for Social Policy*. San Diego: Academic Press; 1998
89. Olweus D. *Bullying at school: what we know and what we can do*. USA, Cambridge: Blackwell; 1993
90. Salmivalli C, Lappalainen M, Lagerspetz KMJ. Stability and change of behavior in connection with bullying in schools: A two-year follow-up. *Aggressive Behav* 1998; 24: 205-218
91. Salmivalli C, Peets K. Bullies, victims, and bully-victim relationships in middle childhood and early adolescence. In: Rubin KH, Bukowski WM, Laursen B, editors. *Handbook of peer interactions, relationships, and groups*. New York: Guilford; 2009: 322-340
92. Gill DL, Dziewaltowski DA. Competitive orientation among intercollegiate athletes: Is Winding the only Hing? *Sport Psychol* 1988; 2: 212-221
93. White SA, Duda JL, Keller MR. The relationship between goal orientation and perceived purposes of sport among youth sport participants. *J Sport Behav* 1998; 21: 474-484
94. Benenson JF, Roy R, Waite A et al. Greater discomfort as a proximate cause of sex differences in competition. *Merrill Palmer Quart* 2002; 48: 225-247
95. Klimczak J, Bublewicz B. Program przeciwdziałania poprzez sport agresji i patologii wśród dzieci i młodzieży. Warszawa: Ministerstwo Sportu i Turystyki, Ministerstwo Spraw Wewnętrznych; 2012 [in Polish]
96. Pine DS, Cohen E. Therapeutics of Aggression in Children. *Pediatr Drugs* 1999; 1(3): 183-196
97. Buitelaar JK, van der Gaag RJ, Cohen-Kettenis P et al. A randomized controlled trial of risperidone in the treatment of aggression in hospitalized adolescents with subaverage cognitive abilities. *J Clin Psychiatr* 2001; 62(4): 239-48
98. Tyrer P, Oliver-Africano P, Romeo R et al. Neuroleptics in the treatment of aggressive challenging behaviour for people with intellectual disabilities: a randomised controlled trial (NACHBID). *Health Technol Assess* 2009; 13(21): iii-iv, ix-xi, 1-54
99. Tsiouris JA. Pharmacotherapy for aggressive behaviours in persons with intellectual disabilities: treatment or mistreatment? *J Intellect Disabil Res* 2010; 54(1): 1-16
100. Willner P. The neurobiology of aggression: implications for the pharmacotherapy of aggressive challenging behaviour by people with intellectual disabilities. *J Intellect Disabil Res* 2014; 59(1): 82-92
101. Repp AC, Singh NN, Olinger E et al. The use of functional analyses to test causes of self-injurious behaviour: rationale, current status and future directions. *Ment Defic Res* 1990; 95-105
102. Cox RD, Schopler E. Aggression and self-injurious behaviors in persons with autism – the TEACCH (Treatment and Education of Autistic and related Communications Handicapped Children) approach. *Acta Paedopsychiatr* 1993; 56(2): 85-90
103. Wachtel LE, Contrucci-Kuhn SA, Griffin M et al. ECT for self-injury in an autistic boy. *Eur Child Adolesc Psychiatry* 2009; 18(7): 458-63
104. Wachtel LE, Jaffe R, Kellner CH. Electroconvulsive therapy for psychotropic-refractory bipolar affective disorder and severe self-injury and aggression in an 11-year-old autistic boy. *Eur Child Adolesc Psychiatry* 2011; 20(3): 147-52
105. Consoli A, Cohen J, Bodeau N et al. Electroconvulsive therapy in adolescents with intellectual disability and severe self-injurious behavior and aggression: a retrospective study. *Eur Child Adolesc Psychiatry* 2013; 22: 55-62
106. Haq AU, Ghaziuddin N. Maintenance Electroconvulsive Therapy for Aggression and Self-Injurious Behavior in Two Adolescents With Autism and Catatonia. *The Journal of Neuropsychiatry and Clinical Neurosciences* 2014; 26: 64-72
107. Kalina RM, przy współudziale M. Kumali. Zabawy ruchowe jako narzędzia diagnozowania agresywności. *Kultura Fizyczna* 1996; 3-4: 19-24 [in Polish]
108. Kalina RM, Jagiełło W. Zabawowe formy walki w wychowaniu fizycznym i treningu sportowym. *Zeszyty Naukowo-Metodyczne. Akademia Wychowania Fizycznego J. Piłsudskiego*. Warszawa: Wydawnictwo AWF; 2000 [in Polish]
109. Hofmann SG, Asnaani A, Vonk IJJ et al. The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-analyses. *Cognit Ther Res* 2012; 36(5): 427-440
110. Del Vecchio T, O'Leary KD. Effectiveness of anger treatments for specific anger problems: a meta-analytic review. *Clin Psychol Rev* 2004; 24(1): 15-34
111. Saini M. A meta-analysis of the psychological treatment of anger: developing guidelines for evidence-based practice. *J Am Acad Psychiatry Law* 2009; 37: 473-488
112. Kalina RM, Dadelo S, Chodała A et al. „Declared bravery” and its measurement. *Phys Educ Sport* 2005; 49 (3): 213-218
113. Buss AH, Durkee A. An inventory for assessing different kinds of hostility. *J Consult Psychol* 1957; 21(4): 343-9
114. Kalina RM. *Sporty walki i trening samoobrony w edukacji obronnej młodzieży*. Warszawa: Polskie Towarzystwo Naukowe Kultury Fizycznej; 1997 [in Polish, abstract in English]
115. Syska JR. *Psychomotoryczne efekty uprawiania przez kobiety nowoczesnych form gimnastyczno-tanecznych z elementami samoobrony*. PhD Thesis. Warszawa: Akademia Wychowania Fizycznego J. Piłsudskiego; 2005 [in Polish]
116. Kalina RM, Kałużny R, Supiński J et al. Correlations between behaviors in sport fight and non-sport confrontations. *Wychowanie Fizyczne i Sport Vol. XLII, Proceeding of 3rd International Scientific Congress on Modern Olympic Sport*. Warszawa: Wydawnictwo Naukowe PWN; 1999: 146-147
117. Geen RG, Stonner D. The meaning of observed violence: Effects on arousal and aggressive behavior. *J Res Pers* 1974; 8: 55-63
118. Geen RG, Stonner D, Shope GL. The facilitation of aggression by aggression: Evidence against the catharsis hypothesis. *J Pers Soc Psychol* 1975; 31:721-726
119. Reid R, Hay D. Some behavioral characteristics of rugby and association footballers. *Int J Sport Psychol* 1979; 10(4): 239-251
120. Allawy MH. Differences in athletic aggression among Egyptian female athletes. *Med Sport* 1981; 15: 63-66
121. Dominick JR. Videogames, television violence and aggression in teenagers. *J Commun* 1984; 34: 136-147
122. Cooper J, Mackie D. Video games and aggression in children. *J Appl Soc Psychol* 1986; 16:726-744
123. Peset F, Villamón M, Ferrer-Sapena A, González LM et al: Scientific literature analysis of Judo in Web of Science®. *Arch Budo* 2013; 9(2): 81-91
124. Midgley R, editor. *The Complete Encyclopaedia of Exercises*. London; 1979
125. Jagiełło W, Kalina RM, Tkaczuk W. Age peculiarities of speed and endurance development in young judo athletes. *Biol Sport* 2001; 18(4): 281-295
126. Jagiełło W, Kalina RM, Tkaczuk W. Development of strength abilities in children and youths. *Biol Sport* 2004; 21(4): 351-368
127. Jagiełło W, Kalina R. Properties of Motor Development in Young Judokas. *J Hum Kinet* 2007; 17:113-120
128. Jagiełło W, Kalina RM, Korobielnikow G. Morphological diversification of female judo athletes. *Arch Budo* 2007; 3:27-34
129. Jagiełło W. Differentiation of the body build in judo competitors of the men's Polish national team. *Arch Budo* 2013; 9(2):117-125
130. Jagiełło W, Wolska B, Sawczyn S et al. The similarity of training experience and morphofunctional traits as prediction criteria of the sports level in subsequent stages of long-term women's judo training. *Arch Budo* 2014; 10: 209-218
131. Dąbrowski A, Dąbrowska A, Majcher P. Socjalizacyjne funkcje i edukacyjne wartości judo. *Sport Wyczynowy* 1996; 9-10: 42-46 13 [in Polish, abstract in English]
132. Hara T, editor. *Report of Judo Therapy 2003*. Japanese Judo Therapists Association. Tokyo Taiyo Graphic; 2003: 199 [in Japanese]
133. Inoue S, Nakao M, Nomura K et al. Increased number of Judo therapy facilities in Japan and changes in their geographical distribution. *BMC Health Serv Res* 2011; 11: 48
134. Kim PS, Shin YH, Noh SK et al. Beneficial effects of judo training on bone mineral density of high-school boys in Korea. *Biol Sport* 2013; 30(4): 295-299
135. Yannakis L. Success Rate. Discussion of All Aspects of Traditional and Modern Judo.
136. Łęcki P, Supiński J. Refereeing errors as the cause of escalation of emotions and increase in possible health and life hazards during football match – the method developing competence of team sports and combat sports referees as the part of improving their qualifications. *Arch Budo Sci Martial Art Extreme Sport* 2014; 10: 43-46
137. *Dictionary of Sport And Exercise Science*. London: A. & C. Black; 2006

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