ORIGINAL ARTICLE

Possibilities and limitations of judo (selected martial arts) and innovative agonology in the therapy of people with mental disorders and also in widely understood public health prophylaxis

Authors' Contribution:
A Study Design
B Data Collection
C Statistical Analysis
D Manuscript Preparation
E Funds Collection

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Abstract

Background and Aim: From the perspective of the modern language of health science, it is rightful interpretation, that multidimensional judo deserves to be recognised as a specific method of public health, having a complementary impact on somatic and mental aspects of health. The aim of this review is theoretical and empirical argumentation regarding possibilities and limitations of judo and *innovative agonology* application in an area of broadly understood prophylactic in public health with special focus on therapy of people with mental disorders.

Material and Methods: As main criteria for reviewing published scientific papers with relations with a term of *judo*, by a sole presence of this term in its title ("judo", "judoka", "judoist") was taken. Databases were accessed in 31.07.2017 despite *Web of Knowledge* power of collecting knowledge and data is limited to papers written in English. That is why criteria of inclusion to this work are limited to all *Web of Science* databases (not only Core Collection) but also *Research Journal of Budo*, which belongs to Japanese Academy of Budo (papers written in Japanese, abstracts in English).

The review books and articles concerning *agonology* include 1) the historical context of creating and publishing specific theories of *agonology*; 2) unique value of *agonology* in a methodological meaning and its utilitarian applications; 3) substantive offer of *innovative agonology*.

Results: Applied search method in *Web of Knowledge* resulted in 1,264 records found, written by scientists from 66 different countries: Brazil (140); Poland (118); Japan (86). In the ranking of general science categories, there is undisputed domination of papers classified to science technology (1,058), life science and biomedicine (1,012), social sciences papers (270). In a category of research areas, out of 100 research areas, sports sciences are dominating with some 916 papers included, the area of general internal medicine (193), physiology (183). Rehabilitation concerns 67 publications. Occasional psychiatry and people with mental disorders.

Five detailed theories of agonology were published in 6 separate books (from 1938 to 2000, all in Polish). Since 2011 *innovative agonology* offers e.g.: mixed assessments; martial arts bibliotherapy; modern health-related training.

Conclusion: Quantitative analysis of scientific papers available in global space of science regarding judo is a proof, that 84% of works are framed into two general science categories: science technology and life science and biomedicine. Sports orientation is dominating over health promotion and public health medicine – which confirms the first hypothesis. Recommendations of *innovative agonology* are close to the overall concept of a *jūdō* creator, Jigoro Kano. The concept of *jūdō* by Jigoro Kano and *innovative agonology* do not exclude themselves. They are coherent, which confirms the second hypothesis.

Key words: budō • combat sports • fun forms of martial arts • Jigoro Kano • martial arts • neo gladiatorship

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INTRODUCTION

Upon first recommendations, Jigoro Kano highlighted, that ***j***ū***d***ō (written in this way means compliance with Jigoro Kano's conceptions) not only modern martial art but also before anything else, it is a consistent system of physical and moral education [1-4]. At the turn of the 19th and 20th century, he recognises, that emerging Olympic Movement is a suitable occasion for promoting it. He presented this idea originally as a lecture given at the University of Southern California on the occasion of the 10th Olympiad in Los Angeles 1932 [5]. He could not foresee, that judo will be officially included at summer Olympic games at 1972. At that moment, all sport was strongly commercialised, subjected to the strict rigour of mass media domination, connected with business and politics. At 1989, judo, alongside with kendo and sumo was implemented in the physical education system in Japan by the name of ***budō*** [6].

The appearance of *Archives of Budo* in a global space of science in 2005 caused increased interest not only in Japanese martial arts in health aspects. The necessity of redefinition of journal mission in 2013, creating branch journal called *Archives of Budo Science of Martial Arts and Extreme Sports* [7] was a consequence of phenomena showed by Peset et al. [8]. During the period of 5 years (2005-2010), *Archives of Budo* became a leader regarding judo-related papers published in 1959-2010 in journals evaluated by *Web of Science*. Moreover, topic analysis of papers published in *Archives of Budo* from 2005 to 2010 showed total domination of judo-related issues [7]. This result is an indirect proof how strong is an intellectual influence of Jigoro Kano upon scientific environment throughout the world. None other martial art generates numerous such group of researchers with highest scientific qualifications.

From the perspective of the modern language of health science, it is rightful interpretation, which multidimensional judo deserves to be recognised as a specific method of public health, having a complementary impact on somatic and mental aspects of health.

Public health medicine – according to *Concise Colour Medical Dictionary* – is defined as „the branch of medicine concerned with assessing needs and trends in health and disease of populations as distinct from individuals. Formerly known as *community medicine* or *social medicine*, it includes epidemiology, health promotion, health service planning and evaluation, communicable disease control and environmental hazards" [9, p. 549]. Sticking to terms defined by this *Dictionary*, such as "epidemiology", „health promotion", „health service planning", „environment" (see glossary) there is possible to deeply analyse judo accordingly to Jigoro Kano concept and its implementation in different countries with two perspectives of applications. On the one side, with assessing needs and trends in health and disease of populations. On the other hand with the need of every single individual, where traditional medical procedures are insufficient.

For the parallel analysis and perspective of such application based on the same methodological assumptions encourages *innovative agonology* [10]. The main difference is that at the most recent development stage of this deeply esoteric science about struggle [11, 12] is not separate martial arts. Oppositely, *innovative agonology* (or rather prophylactic and therapeutic agonology) is specific science, which formal concepts are formulated on a highest general level than technical terms of judo, budo or any other martial art developed outside Asia [10].

The aim of this review is theoretical and empirical argumentation regarding possibilities and

Epidemiology – ***n.*** the study of epidemic disease, with a view to finding means planned on of control and future prevention. This not only applies to the study of such classical epidemics as plague, smallpox, and cholera but also includes all forms of the disease that relate to the environment and ways of life. It thus includes the study of the links between smoking and cancer, and diet and coronary disease, as well as communicable diseases [9, p. 222].

Health promotion – a programme of surveillance planned on a community basis to maintain the best possible health and quality of life of the members of the community, both collectively and individually. Programmes include a blend of such personal services as health education, immunisation, and screening tests, with environmental monitoring of the atmosphere, housing and water and food supplies as well as occupational hazards [9, p. 296].

Health service planning – balancing the needs of a community, assessed by such indices as mortality, morbidity, and disability, with the resources available to meet these needs in terms of medical manpower (ensuring the numbers in training grades meet but do not exceed future requirements for career grades) and technical resources , such as hospitals (capital planning), equipment , and medicines. Success is measured by a process ***medical audit in*** which the use of resources is weighed against the efficiency of their use (e.g. treatments were undertaken, bed occupancy) and effectiveness regarding outcome (e.g. deaths, complications, quality of life, return to work) [9, p. 296].

limitations of *jūdō* (judo) and *innovative agonology* application in an area of broadly understood prophylactic in public health with special focus on therapy of people with mental disorders.

The realisation of this goal involves verification of the following hypotheses:

H1 – articles in scientific journals, dedicated to *jūdō* are dominated by sports aspect of judo, with mostly analysis of physiological and motor perfectionism;

H2 – *innovative agonology* have the universal characteristic of formulated laws, rules and principles, as well as original methods and means of prophylactic and therapy, which are sub judged to open formula, where the only limitation is on mixed evaluation (effeciency with ethics) of every action. It does not states contrary to ethics and motor principles of *jūdō* or those martial arts and defence systems, which are not harmful towards health and interpersonal relations.

MATERIAL AND METHODS

Main premises and assumptions

It is not contested, that Jigoro Kano contributed greatly to the modern understanding of wide categories of martial arts as potential methods and means of enhancing every health aspects – somatic, mental and social [13, 14]. In contrary to that vision, there are promoted by electronic media contemporary forms of gladiatorial contest, among other names called *Mixed Martial Arts* – MMA [15].

As main criteria for reviewing published scientific papers with relations with a term of *judo*, by a sole presence of this term in its title ("judo", "judoka", "judoist") was taken. Apparently, it is contrary to assumptions described above. However, it is obvious, that comprehensive review of all judo-related papers with detailed topics exceeds capabilities of an even large international team of researchers. There are papers regarding specific connections of judo with different aspects, but authors did not put term "judo" or any of its varieties in a title. For this group of authors, we can acknowledge, that they inform the reader, that their work issue is not directly connected with a specificity of judo. Analysis of specific judo-related keywords (e.a. *randori*, *nage-no kata*, *ukemi waza*) also will not do a complete review, as it is hard to guess all possible combinations of words that someone may come up with.

This simplest criterion of identification for use in this review (derivative from word "judo" in a title) has an elementary methodological advantage. In a part of papers, judo athletes are considered as a material for specific issues such as biomechanical, physiological, psychological etc. Recommendations may not be associated with a specificity of judo training or its other aspect (it could be about any other universal aspect). Regardless, term "judo" in its title is justified. For example, long-term judo training is one of the possibilities to analyse results by differences between physically active and those who prefer sedentary lifestyle. No rule forbids such comparison (judo athletes – not physically active individuals). Another example is scientific paper qualified to science technology (according to general categories of science), which puts "judo" in the title just to inform that it will be about the application of specific technology for use in judo, or for any other application. However, the crucial part is an analysis of phenomena by specialist related to science technology etc.

Different nationalities of *jūdō* creator (Jigoro Kano, in 19th century model his method on traditions of samurai ju-jitsu and Japan culture) and *agonology* co-authors (three Polish scientist who have the same methodological school, but different in age and experiences of fighting practice in real world) determined to include partially works written in Japanese and Polish. Review of *judo*-related works is partially based on papers written in Japanese, while *agonology* (despite its newest implementation – innovative agonology) on papers written in Polish (books included).

First of all, Jigoro Kano, in a lecture about his concept of *jūdō* states that, „final aim of Judo, therefore, is to inculcate in the mind of man a spirit of respect for the principle of maximum efficiency and mutual welfare (...)" [5, p. 58]. Therefore, people with mental disorders, are in a difficult situation to achieve that, because their inner state, including emotional, intellectual or any other mental limitation makes harder or impossible for achieving "judo in mind" state.

Secondly, our therapeutic achievements by working with people with a mental disorder by using motor elements of *jūdō* connected with a cognitive-behavioural offer of *innovative agonology* bring empirical argumentation, which among other things, the potential of *jūdō* is not used effectively in widely understood public health prophylaxis (in national systems and globally).

Environment – ***n.*** any or all aspects of the surroundings of an organism, both internal and external, which influence its growth, development, and behaviour [9, p. 220].

Olympic Movement – *noun* all the international sporting federations who abide by the rules of the Olympic Charter [91].

Summer Olympics – *noun* the Olympic event that takes place during the summer of an Olympic year [91].

Perfectionism – ***noun,*** rigorous rejection of any performance or level of competence that is less than perfect [91].

Public health – ***noun*** the study of illness, health and disease in the community. ð **community medicine** [91].

Community medicine – ***noun*** the branch of medicine devoted to the provision of public health care [91].

Struggle – any activity that is at least a two-subject one (premising that a team can be a subject) where at least one of subjects hinders the other [6].

Budo (Budō) – originally a term denoting the "Way of the warrior", it is now used as a collective appellation for modern martial arts of ***kendō***, ***jūdō***, ***kyūdo*** and so on. The primary objective of these "martial ways" is self-perfection (***ningen – kesei***) [6].

Nage-no kata – forms of throwing.

Randori – sparring in judo in which both participants practice attacking and defending [6].

Ukemi waza – safe fall technique.

For the third, sport pathology, which did not omit judo (e.g. aggression, death cases and injuries during training and tournaments, migration of Olympic champions to bloody fights of contemporary gladiators) is probably the biggest barrier for promoting wide category of martial arts as substantial methods and means in many aspects of public health prophylaxis.

Specific criteria for reviewing publications, showing research trends of phenomena specific for „judo" and on the edge of topics related to different groups and disciplines of science

Databases were accessed in 31.07.2017. Despite *Web of Knowledge* power of collecting knowledge and data, it is limited to papers written in English. That is why criteria of inclusion to this work are limited to all *Web of Science* databases (not only Core Collection) but also *Research Journal of Budo*, which belongs to Japanese Academy of Budo (papers written in Japanese, abstracts in English).

In a search engine, phrase "judo" (and all variances of the judo-related word) was typed, and set search for "title". It was set to show results from all years. Obtained results were analysed using inbuild *Web of Science* tools. Records were ranked in following fields: authors, countries/territories, general categories and research areas, journal.

However, *Research Journal of Budo* is not indexed in *Web of Science*, as there are language barriers, so does not fit into criteria for inclusion. Therefore, this journal papers cannot be analysed by the automated engine of *Web of Science* with other papers. That is why, new categories, for showing trends of the topic, will be presented. Analyzed period concerned 2010 to 2017 (July).

All included papers put in specific categories by using smart groups in EndNote. This bibliometric analysis will only categorise papers by main subjects and what topics they are focused on. All papers were selected by following categories by words in the title:

"competition" – all papers related to competition subject understand as rules of competitions and other circumstances related to rules or conditions of winning besides this related to physiological or mental capabilities of competitors;

"injury" – all papers related to injury occurrence during judo practice or competitions;

"physiology and performance" – it is hard to distinguish between performance during competition and physiological reactions of judo athletes (that is why performance understand as physiological conditions or physiological changes during judo-related activity are in that category);

"technique" – all papers related to analysis of technique executions during practice or competitions;

"education & mental" – all papers related to spreading ideas of judo as well as education of judo principles of the youth, as well as mental development through judo practice.

This criterion splits all topics of judo-related papers to categories for psychosomatic aspects and competition-related environment of judo as an Olympic discipline. If some paper has aspects of both categories, the majority of paper topic determines whether the category is more suitable. It is decided by the main aim of this paper so that overall trends will be shown despite minor dilemmas.

Specific criteria of review of publications regarding "agonology" (science about struggle) in relation to complementary health promotion and enchantment of survival ability

The necessity of references to books written in Polish is a consequence of an editorial way of all specific agonology theories (since 1938 to 2000). Only from 2011 [16] agonology (and its basic terminology) is promoted in English-based journals as the original achievement of Polish scientists. In a global space of science (so in English, available on the Internet in a *Web of Science*) first work regarding the relationship of agonology with judo, budo and wide understood of martial arts was published in the year 2015 [11].

This review includes 1) the historical context of creating and publishing specific theories of *agonology*; 2) unique value of *agonology* in a methodological meaning and its utilitarian applications; 3) substantive offer of *innovative agonology*.

RESULTS

Review of trends in international journals dealing with judo research[1]

Applied search method in *Web of Knowledge* resulted in 1,264 records found, written by scientists from 66 different countries. At the first positions in this ranking, there are papers published by authors from Brazil (140). The second place belongs to Poland (118), and the third to Japan (86). Only papers from Brazil and Poland exceeds 100 publications. From third to sixth place, authors from specific countries published several dozens of papers (86 to 72). There is a large gap between 6th and 7th place, where the drop in some publication is 46. From this point, there is a steady decrease from several to one paper per country (25 to 1) (Table 1).

In the ranking of general science categories, there is undisputed domination of papers classified to science technology (1,058) and life science and biomedicine (1,012). On the third place, there are social sciences papers (270). Whereas 4th to 6th place did not exceed 100 papers (Table 2).

In a category of research areas, out of 100 research areas, sports sciences are dominating with some 916 papers included. Second place is occupied by area of general internal medicine (193) and the third by physiology (183), which shows the dominance of papers related to performance and physiology of judokas. At the rest of ranking places, there is a steady decrease in some papers in next areas. By analysing results, it showed a bigger interest in psychology (5th) than social and behavioural science (6th and 11th), which represents mental aspect. After them, there is interest in orthopaedics (8th) and rehabilitation (12), neuroscience neurology (14th) and pathology (18th), which corresponds with injury-related topics. In the rest part of the ranking, there is a mix of areas related to specific aspects of medicine, humanities and engineering (Table 3).

Regarding some judo-related publications in top 50, journal *Archives of Budo* is ranked as first (114). At the second place, there is *The Journal of Korean Alliance of Martial Arts* (49). On the third place, there are *Korea Sports Research and Medicine and Science in Sports and Exercise* (40). First, two journals are strictly related to martial arts, while the rest of journals focused on topics related to sport, sports medicine and exercises (Table 4).

1. Results of this part of paper is main empirical argumentation of oral presentation RM Kalina „Trends in international journals dealing with judo research" during: 2nd International Budo Conference (Japanese Academy of Budo 50th Anniversary Conference), September 6-8 , 2017, Osaka, Japan.

Table 1. Ranking positions (RP) by 66 countries with most publications dedicated or related to judo (n = 1,264).

RP	Country	Number of articles	RP	Country	Number of articles
1	Brazil	140	14	South Korea	15
2	Poland	118	15	Italy	13
3	Japan	86	16	Israel	12
4	Spain	84	17	Austria, Greece, Turkey	11
5	USA	73	18	Romania, United Kingdom	9
6	France	72	19	Iran, Russia, Switzerland	7
7	Serbia	26	20	Czech Republic, Egypt, India, PRC, Wales	6
8	Germany	25	21	Australia, Chile, Norway, Qatar	5
9	England	24	22	Denmark, Netherlands, Ukraine	4
10	Tunisia	22	23	Algeria, Finland, Hungary, Morocco, New Zealand, Sweden, Taiwan	3
11	Belgium, Canada, Croatia	20	24	Malaysia, Mexico, Philippines, Scotland, Slovakia	2
12	Portugal	19	25	Argentina, Benin, Cameroon, Cuba, Cyprus, Equator, Ghana, Hong Kong, Ireland, Ivory Coast, Kazakhstan, Lithuania, Nigeria, Singapore, Slovenia, Thailand	1
13	Bosnia Herzegovina	17			

Table 2. Ranking position (RP) by 6 general categories of 1,264 scientific publications (one article may be put in more than one category).

RP	General category	Number of papers included
1	Science technology	1,058
2	Life sciences biomedicine	1,021
3	Social sciences	270
4	Arts humanities	71
5	Physical sciences	59
6	Technology	42

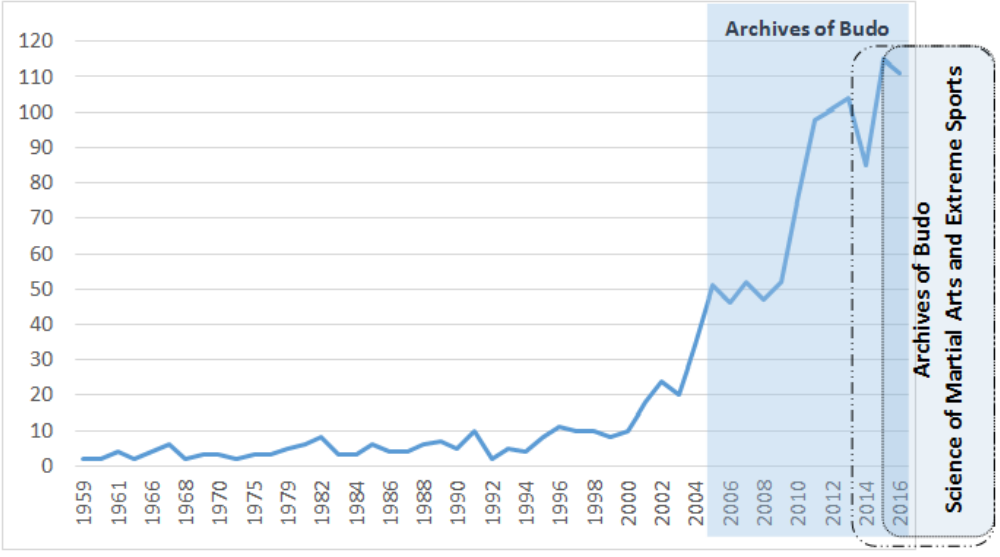

Figure 1. Dynamics of a number of publications (n = 1,264) published each year starting from 1959 to 2016.

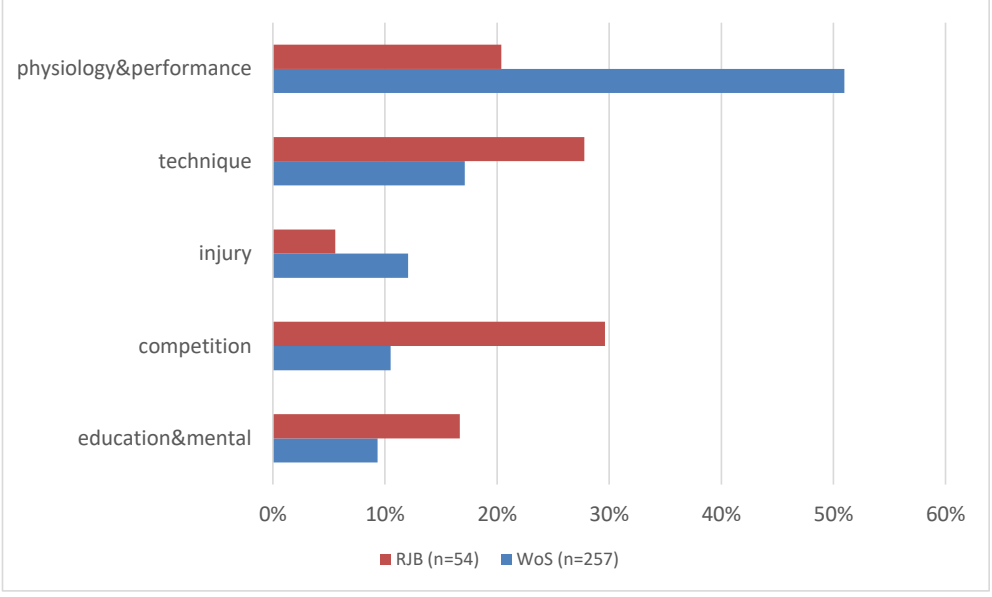

Figure 2. Distribution of all papers dedicated or linked to judo [%] in Web of Science (WoS) – variable order; and Research Journal of Budo (RJB) included in the analysis by specific categories.

Table 3. Ranking position (RP) by 100 research areas (one article among 1,264 could be put to more than one area).

RP	Research area	Number of articles	RP	Research area	Number of articles
1	Sport sciences	916	**23**	Radiology nuclear medicine medical imaging	27
2	General internal medicine	193	**24**	Engineering	25
3	Physiology	183	**25**	Research experimental medicine	24
4	Paediatrics	143	**26**	Biophysics; life sciences biomedicine other topics	23
5	Psychology	134	**27**	Haematology	22
6	Social sciences other topics	106	**28**	Zoology	21
7	Biochemistry molecular biology	95	**29**	Art humanities other topics; psychiatry	20
8	Orthopaedics	87	**30**	Health care sciences services; surgery	18
9	Anatomy morphology	72	**31**	Infectious diseases	17
10	Nutrition dietetics	71	**32**	Business economics; environmental sciences ecology; literature	16
11	Behavioural sciences	70	**33**	Cell biology; computer science; demography; history	13
12	Rehabilitation	67	**34**	Chemistry; food science technology; sociology	11
13	Education educational research	59	**35**	Geriatrics gerontology	10
14	Neurosciences neurology	57	**36**	Dermatology	9
15	Cardiovascular system cardiology	52	**37**	Film radio television; microbiology; reproductive biology	8
16	Endocrinology metabolism; science technology other topics	48	**38**	Anthropology; geography; mycology; ophthalmology; philosophy; physics	7
17	Pathology	44	**39**	Dentistry; government law	6
18	Mathematics	42	**40**	Genetics heredity; computational mathematical biology; religion; urology nephrology; women studies	5
19	Respiratory system	36	**41**	Communication, information science library science; toxicology	4
20	Medical laboratory technology	34	**42**	Art; instruments; linguistics; oncology; plant sciences	3
21	Pharmacology pharmacy	33	**43**	Agriculture; allergy; area studies; Asian studies; electrochemistry; emergency medicine; evolutionary biology; gastroenterology; gynaecology; otorhinolaryngology; palaeontology; rheumatology; social issues; social work telecommunications	2
22	Immunology	30	**44**	Crystallography; cultural studies; imagine science; international relationships; materials sciences; meteorology atmospheric science; music; nursing; optics; public administration; spectroscopy	1

Table 4. Ranking positions (RP) of top 50 journals by a number of publications related to judo (n = 1,264).

RP	Journal name	Number of articles
1	Archives of Budo	114
2	The Journal of Korean Alliance of Martial Arts	49
3	Korea Sport Research; Medicine and Science in Sports And Exercise	40
4	The Korean Society of Sports Science	35
5	Journal of Strength And Conditioning Research	31
6	Medicine Science in Sports Exercise	29
7	The Journal of Sports Medicine and Physical Fitness	23
8	Journal of Sport and Leisure Studies; The Korean Journal of Physical Education, The Korean Journal of Sport	22
9	Journal of Sports Medicine and Physical Fitness; Journal of Sports Sciences	20
10	Perceptual and Motor Skills	20
11	International Journal of Performance Analysis In Sport; International Journal of Sports Medicine; Korean Journal of Sport Biomechanics	16
12	Biology of Sport; Journal of Human Kinetics; Science Sports	15
13	Archives of Budo Science of Martial Arts And Extreme Sports; British Journal of Sports Medicine	14
14	Medicina Dello Sport	13
15	Journal of Sports Science and Medicine, Journal of Sports Science Medicine, Revista Brasileira De Medicina Do Esporte	11
16	Biological Rhythm Research, International Journal of Sports Physiology and Performance, Luminescence, Luminescence Chichester, Luminescence The Journal of Biological and Chemical Luminescence	9
17	Health and Martial Arts in Interdisciplinary Approach; International Journal of Sport Nutrition and Exercise Metabolism; Korean Society for Wellness	8
18	6th International Scientific Conference on Kinesiology Integrative Power of Kinesiology; Asian Journal of Sports Medicine; Kinesiology; Medicina Dello Sport Turin	7
19	International Journal of Sports Science Coaching; Motriz Revista De Educacao Fisica, Procedia Social and Behavioral Sciences, Revista Brasileira De Educacao Fisica E Esporte	6
20	Doklady Akademii Nauk Sssr, Exercise Science, Isokinetics And Exercise Science, Journal Of Coaching Development, Rbne Revista Brasileira De Nutricao Esportiva	5
21	Sportverletzung Sportschaden, Strength And Conditioning Journal, Wcpcg 2010	4

Table. 5. Detailed theories of agonology were published in Polish from 1938 to 2000 in separate books.

Author	Printed (year)	Detailed theory
Tadeusz Kotarbinski [17]	1938	the general theory of struggle (agonology)
Józef Konieczny [18]	1972	theory of destructing (a cybernetic theory of struggle)*
Jarosław Rudniański [19]	1983	theory of a non-armed struggle
Jarosław Rudniański [20]	1989	theory of a non-armed struggle and theory of compromise
Roman M. Kalina [21]	1991	theory of defensive struggle
Roman M. Kalina [22]	2000	empirical theory of combat sports

* Destruction takes place mainly "on the ground" (the armed struggle).

From the beginning of gathering data in 1959, there were no more than ten records per year up to the year 2000. After that, some published papers burst, exceeding 100 papers per year in 2011 (Figure 1).

In the specific analysis of papers in *Web of Science* (Wos) and *Research Journal of Budo* (RJB), there is a clear difference in the distribution of the proportion of papers included in specific categories. In WoS, physiology & performance related papers exceed 51%. In the rest of categories, distribution is relatively homogeneous in comparison with the first category (from 9% to 17%). Papers published in RJB are distributed more evenly. Scientists focus mainly in competition and technique related papers (30% and 28%), slightly less is in physiology & performance and education & mental (20% and 17%), while seemingly fewer papers than WoS is about injuries (only 6%) (Figure 2).

Review of detailed theories of agonology, publications and reference to historical contexts[2]

Five detailed theories of agonology were published in 6 separate books (from 1938 to 2000, all in Polish) – Table 5. Tadeusz Kotarbiński in 1938 gave the commencement of general theory of struggle (agonology). On order of the Polish Army Headquarters edited a brochure *From Problems of General Theory of Struggle* which was published by the Psychological Section of the Military Knowledge Association [17]. Kotarbiński a military struggle (an armed one) on "the basement". To "an intermediate level" of the stage of generalisation he qualifies struggles e.g.: in sport, in political and lawyers' debates, business competition, partly in education. On the "highest level" a general theory of the deed (praxiology) which includes the theory of struggle [11]. Kotarbiński could not know back then, that in the future, agonology will become separate science subdiscipline, especially its newest form – *innovative agonology*.

Józef Konieczny has not developed agonology as widely understood by science about struggle. His contribution is partly because it is based on a conceptual apparatus of mathematics and cybernetics. He underlines that purposive destruction takes place also in activity which is not an armed struggle [18, p. 24]. The theory of destructing (a cybernetic theory of struggle) has limited application in a field of agonology. Therefore, Józef Konieczny should not be recognised as one of the creators of agonology.

On the contrary, there was Jarosław Rudniański, a student of Tadeusz Kotarbiński. Rudniański published the general theory of struggle during the Martial Law in Poland (1983) in under disguised title *Elements of Praxiological Theory of Struggle. From Problems of a Negative Co-operation* [19]. Contents of these elements and problems were, in fact, precise allegations of the theory of a non-armed struggle (the impression of 2,000 copies was legally edited, practically this book was not accessible). An essential work of Rudniański *A Compromise and a Struggle* was published in 1989 [20]. During the Martial Law in Poland, Rudniański was a teacher of the theory of the struggle for a part of underground *Solidarity*

2 Results of this part of publication is main empirical argumentation of oral presentation RM Kalina „Heritage and the future of East Asian Martial Arts in the development of preventive and therapeutic agonology" during: Waseda University International Conference on East Asian Martial Arts 2017; Future of the East Asian Martial Arts or Budo: The quest for the actual utility and its applicability. September 10, 2017, Tokyo, Japan.

leaders. During his youth, he experienced terror and cruelty of total war. A prisoner of Soviet gulag during the Second World War, after the gulag the soldier of Anders Army participated in the Battle of Monte Cassino (1944) on the side of the Allied forces.

Roman M. Kalina (student of Jarosław Rudniański) besides two detailed theories (defensive struggle [21] and empirical theory of combat sports [22]) brought to agonology specific practical qualifications. He is judo trainer on the master class level (4th dan), specialist for teaching "Judo for Disabled People", instructor of kyok sul and self-defence, author of special programs of hand-to-hand fighting for Armed Forces. As an effect of this year of experiences connected with knowledge and interdisciplinary research, there are original complex methods placed in cognitive-behavioural prophylactic and therapy (Figure 3).

Innovative agonology created by RM Kalina (prophylactic and therapeutic agonology) offers (Figure 4):

1) in cognitive dimension: simple language, unique theories, clear definitions, unique methodology (based on mixed assessments);

2) in behavioural dimension: fun forms of martial arts, kinesiotherapy based on safe fall, self-defence training (including innovative self-defence), prophylactic and therapy aggressiveness, health-related training;

3) martial arts bibliotherapy (program adapted to the intellectual abilities of the individual).

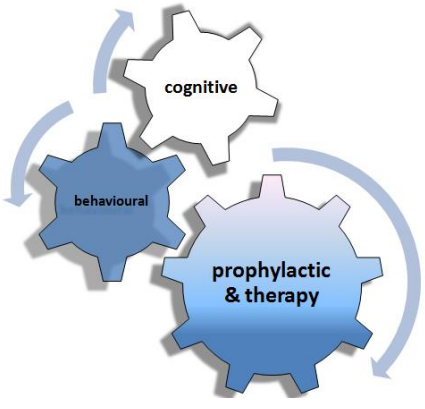

Figure 3. Model cognitive-behavioural prophylactic and therapy innovative agonology.

The most papers are written in English regarding knowledge about agonology and its application in *innovative agonology* concerns: 13 health-related training; 13 none apparatus and quasi-apparatus tests; 11 "about agonology" (Table 6). Interventions for people with mental disorders is mainly limited to therapy and prophylactic based on behavioural methods. We can formulate the metaphor (which should stay as it), that multiplicity of specific issues in separate dimensions of *innovative agonology* is symbolic (and only symbolic) analogue of degrees of initiation in judo (kyu and dan). *Innovative agonology* did not claim rich ideas and practice of judo or any other martial art system as its own.

DISCUSSION

This review is edited in a formula of the original paper and in the same way it is an example of breaking certain paradigms of modern science (see [23], where the innovative methodological approach of editing scientific papers in this category is explained).

Whereas discussion is a synthesis of both reviews: 1) possibilities and limitations of *jūdō* and *innovative agonology* in the therapy of people with mental disorders; 2) possibilities and limitations of *jūdō* and *innovative agonology* in widely understood public health prophylaxis. This synthesis leads to three significant generalisations:

First of all, Jigoro Kano, in a lecture about his concept of *jūdō* states that, „final aim of Judo, therefore, is to inculcate in the mind of man a spirit of respect for the principle of maximum efficiency and mutual welfare (...)" [5, p. 58]. Therefore, people with mental disorders, are in a difficult situation to achieve that, because their inner state, including emotional, intellectual or any other mental limitation makes harder or impossible for achieving "judo in mind" state.

Secondly, our therapeutic achievements by working with people with a mental disorder by using motor elements of *jūdō* connected with a cognitive-behavioural offer of *innovative agonology* bring empirical argumentation, which among other things, the potential of *jūdō* is not used effectively in widely understood public health prophylaxis (in national systems and globally).

Table. 6. Articles dedicated directly and indirectly agonology (n = 56) published in English since 2005 to July 2017, available in *Web of Knowledge* (one article may be put in more than one category).

Issues (number of articles)	References to publications sine 2005 to July 2017												
	05	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
cognitive dimension													
About agonology (11)							16				11,15,85	10,12,26, 48 86, 90	23
Mixed assessments (5)							16,84				85	86	23
Innovative self-defence (2)												10	23
Diagnosis of aggressiveness by simulations tests: pictures etc. (3)							84				85	86	
behavioural													
Health-related training (13)		41	42			71		72,73,74,75		76	44,45,46,77,78		
The method to evaluate the body balance disturbation tolerance skills (3)									50	51	56		
The susceptibility to body injuries during a fall (5)							52				53, 54 55,56		
Fall motoric simulations (1)										60			
Safe fall tests (6)				57		58			59	60	61,62		
Collisions with wall motoric simulations (1)											63		
Avoiding collisions (4)	65										48,49		64
Fun forms of martial arts; diagnosis and therapy of aggressiveness (7)	65										48,49,79	82,83	23
Non apparatus & quasi apparatus tests (13)	65			57		58		73	50, 59	51	53,54,79,81	82,83	
Honourable self-defence for all (8)	65		66	39							40,67,68,	69,70	
martial arts bibliotherapy													
Concepts (4)							16				87,88	89	
Applications (1)							16						

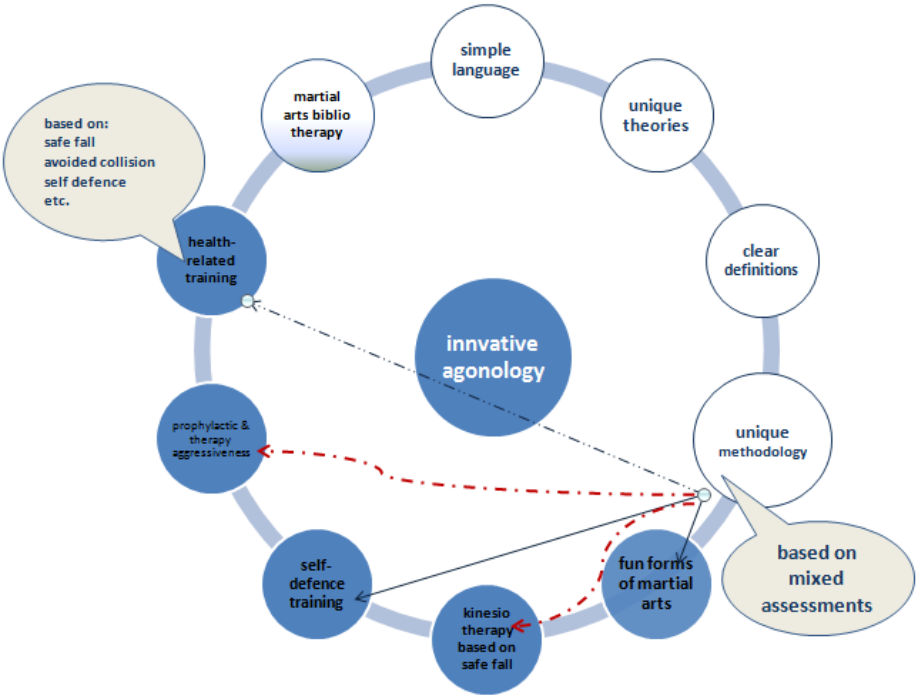

Figure 4. The model offered by the innovative agonology specific tools to pursue the objectives of adaptation – to develop and maintain all dimensions of positive health and ability to survive (red line: also application the motoric simulation or verbal or projective tests).

For the third, sport pathology, which did not omit judo (aggression, death cases and injuries during training and tournaments, migration of Olympic champions to bloody fights of contemporary gladiators, synonym neo gladiatorship, etc.) is probably the biggest barrier for promoting wide category of martial arts as substantial methods and means in many aspects of public health prophylaxis.

As good indicator of perception of judo in a medium scale (in a country, where this activity is popular in many aspects) there are results of the analysis performed by Osipov et al. [24] topics of doctoral (n = 58) and postdoctoral (n = 9) dissertations in period 2000-2016 in Russia. Among 6 topics dominates 32 dissertations (48%), including 7 out 9 postdoctoral, problems of judo athletes' competition preparation and training; the second (16, that is 24%, including 1 postdoctoral) includes works, devoted to increasing physical, psychological and social level of Russian judo athletes; the third (n = 7, that is 10%) deals with methodic of formation of basic judo throws and ways of increasing techniques effectiveness; the fourth (6, that is 9%, including 1 postdoctoral) is devoted to determination of judo role in physical education of persons – students of Russian Federation educational establishments; the fifth included works, devoted to preparation of coaches' and referees' personnel; the sixth dealt with selection of children in judo schools and circles (each 3 PhD thesis, that is 4.5% each) [24].

It is clear that Russian scientists focus their researching efforts around issues connected with judo seen as a sport. However, in a global space of science, there are only 7 publications affiliated by authors from Russia (19 ranking positions in Table 1). This issue is far more complex. It concerns breaking language barriers and long-term effect of *Iron Curtain* [25, 26].

Undoubtedly, applied simplified criteria of identification of judo-related papers makes impossible to select those, which concerns the use of specific methods (e.g. *ukemi waza*) and means (specific judo techniques as a throw, grappling techniques etc.) in the therapy of people with mental disorders. In a case of same works, it is simple – criteria of applied in this paper are fulfilled [27, 28]. In other papers, term "judo" appears among key words [29, 30] or only in text. That is the reason why work titled *Why Prof. Jigoro Kano did not received the Nobel Prize?* [31] was not included in this review, but synthetically

reveals qualities of judo concept as seen by the author before publications were showing the precise connection of agonology with chivalry education (European model) and exact humanistic and ideas of martial arts [11]. Moreover, it was published before *Czestochowa Declarations 2015:* HMA against MMA [15] as a protest against the promotion of neo gladiatorship was formulated.

Heritage of East Asian martial arts goes beyond phenomenon of *jūdō* (the coherent concept of Jigoro Kano [1, 2, 5] in a mental and behavioural sense) and *budō* [6, 32-36] cultivated in Japan in formula authorised by Japanese Academy of Budo in the 50th Anniversary. This *budō* model is deeply rooted in culture and bushido tradition [37] and is worthy of following with possibility of adopting in many aspects in different cultures. Permeation of education and therapeutic models based on martial arts in specific countries of East Asia region is eminent in practice and intellectual concepts supported by scientific argumentation [38]. On all continents, there was an adaptation (mostly in sports formula) of judo, karate, kendo, taekwondo, muay tai. Aikido is soft self-defence art [39, 40], and there are more sharp like hapkido and wushu. Among healing forms of martial arts such as *tai chi*, *Qigong* etc.

In *preventive and therapeutic agonology* there is a place for all martial arts and combat sports with East Asian [41-46]. Methods and means are decided by an expert of *innovative agonology*, which universal language does not favour any national position. Directive of „self-defence" could be based on aikido; goshin jutsu no kata (judo) [6]; hosil sun (taekwondo) [47], kung-fu, etc. Whereas „avoiding collisions" could be based on aikido; partially on karate, kendo or taekwondo, unifight. Feedback is ensured by original motor proposition *innovative agonology*: fun forms of martial arts [48, 49]; the methods to evaluate the body balance disturbation tolerance skills [50, 51]; the susceptibility to body injuries during a fall [52-56]; safe fall for all and disability people [57-62];collision with a vertical obstacle [63]; avoiding collisions [64], honourable self defence for all [39, 40, 65-70]; health-related training [41, 42, 44-46, 71-78]; non apparatus and quasi apparatus tests [50, 51, 53, 54, 57, 58, 65, 73, 79-83], etc. This propositions could be added to any combat sport training. The extent of motor actions in every combat sports is limited even in the same category: for example boxing – karate – taekwondo; judo – sumo – wrestling. Specific means of *innovative agonology* could make combat sport training more attractive, countering routine, motivate for greater effort and regain focus on main training tasks or counter potential injuries etc.

The original cognitive proposals concern: diagnosis of bravery and aggressiveness [84-86] and martial arts bibliotherapy [16, 87-89]. Before innovative self-defence the perspective can be optimistic: effective defence of peace and unrestricted freedom of scientists [90]; effective counteracting each attack on any good of an individual (honour, dignity, life, health, property, etc.) [10].

CONCLUSIONS

Quantitative analysis of scientific papers available in global space of science regarding judo is proof that 84% of works are framed into two general science categories: science technology and life science and biomedicine (with a slight advantage of the first group). More specific analysis (based on the category of research areas) revealed domination of sports sciences (72%) and mere 15% in general internal medicine and 14% for physiology. There is no significant representation of papers related to therapy of people with mental disorders: rehabilitation (5%), neuroscience neurology (4.5%) and pathology 3.5%). Sports orientation is dominating over health promotion and public health medicine – which confirms the first hypothesis.

Recommendations of *innovative agonology* are close to the overall concept of a *jūdō* creator, Jigoro Kano. It especially gives explanations, methods and means of developing *jūdō* in mind (mix assessment of all actions reducing aggressiveness by a fun form of martial arts, honourable self-defence, martial arts bibliotherapy). The concept of *jūdō* by Jigoro Kano and *innovative agonology* do not exclude themselves. They are coherent, which confirms the second hypothesis.

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