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## MOTIVES FOR PRACTICING COMBAT SPORTS

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### ABSTRACT

Combat sports have emerged as systems for self-defense, but in our century they are popular among much wider group of practitioners. The aim of the study is to investigate the motives for practicing combat sports among practitioners over 18 (competitors as well as non-competitors). New method for studying motivation for participation in combat sport is introduced in order to cover wider spectrum of motives for participation. Results. Most highly rated motives in the sample of 95 subjects (45 men and 50 women, aged 18-56, Mean=27.4) are: 1. Positive emotions (incl. thrill); 2. Personal growth (incl. Self-confidence and Volition development) 3. Aesthetics of the sport. At the bottom of the table (rejected motives) are: 1. Financial motives; 2. Prestige. 3. Popularity of their sport. Affiliation is among the non-preferred motives. Competitors rated higher than non-competitors: Competitiveness, Successes, Prestige (Ego strengthening), Rewards, Risk and danger, Personal growth, Self-expression, Self-confidence, Meaning, Self-realization (to become oneself), Aesthetics. Conclusion. Based on the analysis of the data, we recommend marketing and coaching strategies for attracting previously inactive, new practitioners and for increasing practitioners' satisfaction and hence their motivation as a whole.

**Key words:** combat sports, martial arts, motivation, competitors, practitioner, marketing, coaching

### INTRODUCTION

Society benefits in great extent from citizen participation in sports. Sport participation is related to better health – mental and physical, increased longevity, workability and well-being (1-19). At the same time, physical inactivity is the 4<sup>th</sup> leading risk factor for global mortality, being also the main cause of cardiovascular diseases and cancers (20-23). Physically inactive people have higher risk for severe COVID-19 outcomes and dying. Regular physical activity decreases the risk of dying from infectious diseases, such as Covid-19, by 37% (24).

At the same time, Bulgarians do not like to be engaged in sport or exercises, according to the Special Eurobarometer study 472 – Sport and physical activity – December 2017 (21): 68% of

respondents never do sport or exercises, and only 15% of Bulgarians engage in them seldom. 79% of men and 86% of women engage in sport or exercises never or seldom. Only 2% of Bulgarians regularly practice sport or exercises. Taking the negative influences of inactivity into consideration, we can conclude that the health, workability, and well-being of Bulgarians are much worse than the typical EU level. Thus, any incentive for leaving inactivity and adopting more active lifestyle would literally be a life-saver, especially during pandemics.

All these abovementioned considerations directed our research interests to the topic of motivation and especially motivation for practicing combat sports – a field that has quickly expanded over the last thirty years and is known for holding the interest and commitment of practitioners from childhood to old age.

According to Slavin, motivation is “an internal process that activates, guides, and maintains

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behavior over time” (26, p. 248). Participation motivation is defined as “the desire to be involved in an activity, manifested in the stimulation of long-term; active participation in the activity, and commitment to it” (27, p. 61).

The study of Trembath, Szabo and Baxter (28) identified 8 main factors for participation in sport: Team Orientation, Fitness Orientation, Achievement Orientation, Extrinsic Factors, Miscellaneous, Avoidance of Boredom, Popularity, and Self-Improvement. The most important were motives: To get exercise, Stay in shape and To be physically fit. The typical finding of similar studies is that health and fitness are the main reasons for adults' participation in physical activity (28, 29).

Are those 8 factors the main reasons for practicing combat sports too? Is the health and fitness concern the main reason for engaging in combat sports? Or are combat sports similar to extreme sports where practitioners seek freedom, thrill and risk, and play with death (31-36)?

Many researchers point out that combat sports developed for the reason of self-defense. Now in

the 21<sup>st</sup> century, this is probably not the main reason to practice combat sports but is it possible, that many people still start practicing because they feel the need to protect themselves and their families? Studies of participation motivation in combat sports show that there are at least two different motives which are not found in other sports: self-defense and spiritual interests (30, 37-41). This is why regular questionnaires for studying participation motivation in sports are not enough and new methods for studying participation motivation in combat sports are necessary.

## METHOD

The aim of the research is to identify motives for participation in combat sports in practitioners over 18 year.

The subjects were 95 participants in combat sports – 45 males (47.4%) and 50 females (52.6%) aged 19-56 (M=27.4, SD=8.87). 41 of them (43.2%) were competitors and 54 (56.8%) only practice without taking part in competitions (**Table 1**).

**Table 1.** Distribution of the subjects by sex and participation in competitions

	Males	Females	Total
Competitors	22	19	41
Practice only	23	31	54
Total	45	50	95

The subjects participate in different combat sports: judo and sambo, grappling, karate-do – Shotokan and Kyokushin, taekwondo - WTF and ITF, Muay Thai, MMA, kickboxing, boxing, wrestling – Greco-Roman wrestling and freestyle wrestling, kudo, aikido, Brazilian jiu-jitsu, Korean martial arts. Some of them (12.6%) practice more than one combat sport/martial art, up to three.

The study was not anonymous, the subjects wrote their names, email addresses and provided information about their gender, age, sport, answered if they compete or not, and characterized their competitive performance (in

case they are competitors). 24 of the 41 competitors (58.5%) have medals from National Championships and 10 of them (24.4%) – medals from European or World Championships. The participation in the study was voluntary.

The study was conducted using an online based questionnaire, and the Google Forms was the platform used for the online study. For the purposes of the study, a special questionnaire was created, designed specifically for combat sports on the base of literature review and previous pilot interview project (30). This new method for studying participation motivation in adults consisted of 70 items grouped into 31 categories

(scales) of 2 to 4 items each and a 5-degree Likert scale (from 1 – “not important at all” to 5 – “very important”). At this phase of the development of the questionnaire it is possible to present the internal consistency of the scales (**Table 2**). The coefficients of scales’ reliability Alpha Kronbach vary between 0.70 and 0.92.

The statistical data processing was performed using the statistical software package SPSS 21 – descriptive statistics, and nonparametric tests for comparison of different subgroups.

**Table 2.** Results of item analysis and descriptive statistics

	No items	Cronbach's Alpha	Mean	SD	Min	Max	Range
1. Feeling Good	2	.804	4,66	,56	2,50	5,00	2,50
2. Volition Development	2	.710	4,51	,64	2,50	5,00	2,50
3. Pleasure & Thrill	3	.701	4,31	,68	1,33	5,00	3,67
4. Personal Growth	2	.700	4,26	,75	1,00	5,00	4,00
5. Beauty of Sport	2	.882	4,21	,92	1,00	5,00	4,00
6. Coach	3	.893	4,19	,97	1,00	5,00	4,00
7. Self-Confidence	2	.721	4,05	,84	1,00	5,00	4,00
8. Becoming Oneself	2	.753	4,04	,99	1,00	5,00	4,00
9. Challenge	2	.847	3,99	,80	1,00	5,00	4,00
10. Fit & Healthy	4	.750	3,98	,71	2,25	5,00	2,75
11. Self-Esteem	2	.867	3,94	,76	1,67	5,00	3,33
12. Emotional Control	2	.700	3,92	,94	1,00	5,00	4,00
13. Self-Defense	2	.764	3,85	1,02	1,00	5,00	4,00
14. Competitiveness	2	.834	3,84	1,10	1,00	5,00	4,00
15. Self-Expression	3	.833	3,69	,86	1,00	5,00	4,00
16. Escape	2	.857	3,67	1,18	1,00	5,00	4,00
17. Culture	2	.887	3,60	1,13	1,00	5,00	4,00
18. Successes in Sport	2	.836	3,52	1,14	1,00	5,00	4,00
19. Aggressiveness Control	2	.814	3,50	1,22	1,00	5,00	4,00
20. Communication Skills	2	.817	3,41	1,10	1,00	5,00	4,00
21. Feeling Part of Special Group	2	.799	3,41	1,10	1,00	5,00	4,00
22. Meaning of Life	2	.867	3,32	1,06	1,00	5,00	4,00
23. Rewards	2	.717	3,21	,10	1,00	5,00	4,00
24. Danger & Risk	3	.900	3,19	1,17	1,00	5,00	4,00
25. Spiritual	3	.700	3,17	,96	1,00	5,00	4,00
26. Social	2	.875	2,86	,89	1,00	4,67	3,67
27. Unsatisfied by previous Coach	3	.773	2,71	1,25	1,00	5,00	4,00
28. Modern and Popular Sport	2	.908	2,20	1,18	1,00	5,00	4,00
29. Professional	2	.767	2,02	1,23	1,00	5,00	4,00
30. Ego Strengthening	2	.875	1,95	,98	1,00	5,00	4,00
31. Financial (Price)	2	.746	1,75	,90	1,00	4,50	3,50
Items Total	70						

\*Zeros before the decimal points are omitted.

## ANALYSIS OF RESULTS AND DISCUSSION

Motives ranging from most to least preferred, are presented in **Table 2**.

Most preferred (rated over 4.00 by the practitioners) are motives related to positive emotional experiences (Feeling Good, Pleasure and Thrill, Beauty of sport), personal

improvement (Volition development, Personal Growth, Self-Confidence, Becoming Oneself) and Relationship with the coach.

Leading ranks of positive emotional motives are expected and typical for participation motivation for sports; in Self-Determination Theory they are categorized as intrinsic motivation – the most self-determined motivation (42, 43). The idea of leading health motivation is not supported in this study as health and fitness motives are rated as relatively important but are in the middle of the table (10<sup>th</sup> position and  $M=3.98$ , below the cut of 4.00), meaning that, paradoxically, health motivation shouldn't be among the most prominent lines of combat sports' promotion here.

The scientific narrative in sport psychology literature describes influence of sport on the development of the character in children and adolescents (44), but here in this study on adults, development of volition and personal growth are motives rated 2<sup>nd</sup> and 4<sup>th</sup>, respectively. The idea that people deliberately choose to participate in combat sports in order to develop their will is relatively new for sport psychology, mostly due to the instruments for studying participation motivation used in the field: the development of will is not even present in these questionnaires (29, 45, 46), most probably because these scales have been created for studying participation motivation of children and adolescents (29, 46) and then they were mechanically transferred to the field of adults' motivation. This result demonstrates that deliberate personal development and development of the volition, in particular, should be the second strong concept in combat sports promotion. This is even more important because development of the will is something specific to combat sports. Our results are similar to the finding of Zaggelidis et al. (47) – that cultivation of the character is the motive at 3<sup>rd</sup> position for practitioners of Judo and Karate-do (however they used translation of a Japanese questionnaire where this item was present in the first place).

Is participation motivation for combat sports similar to motivation for extreme sports? Is striving for danger and risk also typical for

fighters? The answer is “not exacty”, because the motive Danger and risk is at the 24<sup>th</sup> position out of 31, close to the end of the table, despite the motive Pleasure and thrill being ranked 3<sup>rd</sup>.

Surprising is the rank of affiliation (to find new friends, to be with friends) – 26<sup>th</sup> position of 31, close to the end of the table,  $M=2.86$ . A bit higher but still among not-preferred motives is the position of the Development of communication skills – 20<sup>th</sup> rank,  $M=3.41$ . Affiliation is typical for sport participation (27, 29, 48) and one of the main reasons children and adolescents participate in sport. In our research however, affiliation turned out to be quite an underrated motive. We are not sure if this is something typical for Bulgarian athletes or if this is the situation in combat sports only, which is why this important topic should be subject of further investigation. Similar results report Meyer and Bittmann (39): social motivation is quite important for German karateka as social motives “to cultivate friendships” and “to work with people” are rated 5<sup>th</sup> and 6<sup>th</sup> respectively of 20 most important participation motives; while in Japanese subjects, affiliation does not appear at all among these 20 most important motives for participation in karate-do. Most probably the reason is culturally specific – and not something from the national character per se, but because of the traditional way karate-do or other combat sports are taught in these two countries.

Traditionally strong motive is the attraction to the figure of the coach (or sensei, in Asian combat sports). Placed at 6<sup>th</sup> position ( $M=4.19$ ), this is the 3<sup>rd</sup> strongest motive for participation, after emotional experiences seeking and personal development; this is why we suggest to use the competency and personality qualities of the coach as very important line of promoting combat sports among adults and especially previously inactive newcomers.

Self-defense motive is not among leading motives but is relatively important, at 13<sup>th</sup> position ( $M=3.85$ ). We could suggest that this motivation is important at the beginning but after some time when the basic defense skills are learned, other things are already perceived as more important. Similar are the results of Meyer

and Bittmann (39) when comparing motivation of German and Japanese karateka. In Germany self-defense is at 2<sup>nd</sup> position while Japanese karateka put it at 13<sup>th</sup> position of 20 most important motives for practicing Karate-do.

At the end, spiritual motivation is not among leading motives for participation in combat sports, rated 25<sup>th</sup> from 31 ( $M=3.17$ ). Long-time controversies exist about the spiritual side of martial arts. Majority of researchers accentuate on the aspects from Zen, Shinto and Confucianism in Asian Martial arts and from there, martial arts are seen as “a life-long way to spiritual maturity” (39). Spirituality of martial arts is tightly related to one of their most important characteristics - they could be practiced until very old age. According to the old saying, young practitioners win using their physical power, adult people – their skills, and old practitioners – their spirit. Most probably, during the shift from martial arts to their sport variants – combat sports, – this spiritual component has been lost to a very great extent, but the interest to this mysterious side of combat sports is still quite strong in some practitioners – “spiritual warriors” (30).

Less preferred motives (under the cut of 2) are: Financial (lower price or discount) and Ego strengthening (to be important, to become famous). This could mean that clubs do not use discounts as a way of promotion and this is why they were not reflected by the subjects; it is also possible that the idea of discounts is not attractive for practitioners of combat sports. Anyway, it could not be recommended to use similar incentives as a way for promotion of combat sports. About the “blaze of glory” (prestige), it seems it is not characteristic of combat sports. Most probably the lower rank reflects the lack of media coverage of athletes from combat sports in Bulgaria (except few of them who are world famous professionals).

Are there prominent differences in motives for practicing combat sports between men and women? The answer is: No. There are only 2 motives where the differences are statistically significant: 1. Pleasure and Thrill, as women estimate this motive higher than men

( $U=863.500$ ,  $p=0.042$ ) and 2. Competitive motive, which is estimated higher by men ( $U=1255$ ,  $p=0.048$ ). The second result is in accordance with the data of Biddle and Bailey (49) and Gill et al. (50), showing that competitiveness is more important to men than to women. Also, emotional motivation is more important to women than to men, but it is related to the decrease of tension, not to excitement (49). Most probably, the attraction to excitement is related to the personality structure of women in combat sports, who possess higher masculinity, higher psychoticism and lower neuroticism, compared to non-athlete women (51).

The age of participants influences minimally participation motivation – only one significant difference is identified, in competitive motive: adult participants (over 35 –  $N=20$ ) are less competitive comparing to groups 18-25 ( $N=58$ ) and 26-35 ( $N=17$ ) years old ( $H(df=2) = 9.565$ ,  $p = 0.008$ ). This is understandable as competitions and fights in front of audience are for young people and very few subjects still compete in master tournaments past the age of 35.

The biggest differences in participation motivation are observed in the group of competitors - 13 motives are more important for them than for non-competitors: 1. Pleasure and Thrill ( $U=1382$ ,  $p=0.035$ ), 2. Ego Strengthening ( $U=1516.5$ ,  $p=0.002$ ), 3. Rewards ( $U=1557$ ,  $p=0.001$ ), 4. Personal Growth ( $U=1397.5$ ,  $p=0.023$ ), 5. Self-Confidence ( $U=1373$ ,  $p=0.041$ ), 6. Meaning ( $U=1443.5$ ,  $p=0.011$ ), 7. Successes ( $U=1769$ ,  $p<0.001$ ), 8. Danger and Risk ( $U=1407$ ,  $p=0.024$ ), 9. Self-Expression ( $U=1500.5$ ,  $p=0.002$ ), 10. Become Oneself ( $U=1458.5$ ,  $p=0.007$ ), 11. Beauty of Sport ( $U=1417$ ,  $p=0.014$ ), 12. Professional ( $U=1692$ ,  $p<0.001$ ), and of course, 13. Competitive motive ( $U=1743$ ,  $p<0.001$ ). Competitors' motivation is strongly achievement-oriented. Successes at competitions, prestige and rewards are much more important for competitors, the sport for them is a way to express oneself and to become oneself, they seek for danger and risk (feeling ready even to risk their health), for pleasure and thrill, appreciate more the beauty of sport and are more interested in personal growth and strengthening self-confidence, and this is why practicing their sport

makes life meaningful to them. From this, we can conclude that this type of athletes is similar (in their motivational profile) to the athletes from extreme sports – the unpredictability of competitive activity makes matches extremal by their character and dangerous to health and life.

**Table 3.** Range list of motives for participation (competitors)

	N	Mean	SD
1. Feeling Good	41	4,72	,46
2. Volition Development	41	4,55	,57
3. Personal Growth	41	4,48	,59
4. Beauty of Sport	41	4,46	,77
5. Competitiveness	41	4,44	,65
6. Pleasure & Thrill	41	4,42	,73
7. Becoming Oneself	41	4,35	,76
8. Self-Confidence	41	4,23	,79
9. Successes in Sport	41	4,20	,72
10. Coach	41	4,15	,92
11. Challenge	41	4,12	,67
12. Self-Expression	41	4,00	,61
13. Self-Esteem	41	3,95	,81
14. Fit & Healthy	41	3,92	,74
15. Emotional Control	41	3,85	,91
16. Culture	41	3,79	1,01
17. Self-Defense	41	3,68	,99
18. Meaning of Life	41	3,63	,87
19. Rewards	41	3,61	,97
20. Danger & Risk	41	3,50	1,08
21. Escape	41	3,49	1,32
22. Communication Skills	41	3,45	1,07
23. Feeling Part of Special Group	41	3,37	1,09
24. Aggressiveness Control	41	3,28	1,23
25. Spiritual	41	3,15	,90
26. Social	41	2,80	,90
27. Professional	41	2,65	1,25
28. Unsatisfied by previous Coach	41	2,63	1,28
29. Ego Strengthening	41	2,30	1,02
30. Modern & Popular Sport	41	2,22	1,15
31. Financial (Price)	41	1,51	,65

There is no difference in the leading motives of these two groups: Feeling Good and Volition Development are the most important motives for both groups. This is why emotional motivation (one feeling great after and during the practice, feeling happy) and development of volitional qualities should be used in promotions of combat

At the end, competitors quite more often find professional engagements as professional fighters, coaches or instructors.

The ranking of motives is also different in the groups of competitors and non-competitors.

**Table 4.** Range list of motives for participation (non-competitors)

	N	Mean	SD
1. Feeling Good	54	4,62	,63
2. Volition Development	54	4,48	,69
3. Pleasure & Thrill	54	4,22	,63
4. Coach	54	4,21	1,01
5. Personal Growth	54	4,10	,83
6. Fit & Healthy	54	4,02	,69
7. Beauty of Sport	54	4,02	,98
8. Self-Defence	54	3,98	1,03
9. Emotional Control	54	3,96	,96
10. Self-Esteem	54	3,93	,73
11. Self-Confidence	54	3,91	,85
12. Challenge	54	3,89	,88
13. Becoming Oneself	54	3,81	1,08
14. Escape	54	3,81	1,06
15. Aggressiveness Control	54	3,67	1,21
16. Self-Expression	54	3,45	,94
17. Feeling Part of Special Group	54	3,44	1,12
18. Culture	54	3,44	1,21
19. Competitiveness	54	3,38	1,14
20. Communication Skills	54	3,37	1,13
21. Spiritual	54	3,19	1,00
22. Meaning of Life	54	3,08	1,13
23. Successes in Sport	54	3,01	1,13
24. Danger & Risk	54	2,94	1,19
25. Rewards	54	2,91	,91
26. Social	54	2,91	,88
27. Unsatisfied by previous Coach	54	2,77	1,24
28. Modern & Popular Sport	54	2,19	1,22
29. Financial (Price)	54	1,94	1,03
30. Ego Strengthening	54	1,69	,86
31. Professional	54	1,54	,97

sport as well as in advertisements. But after this, the rankings of these two groups are quite different. The biggest difference is, of course, preference of competitors for competitive motivation (14 ranks higher compared to non-competitors – 5<sup>th</sup> place compared to 19<sup>th</sup> in the rank-list of non-competitors). Similarly, the rank

of successes is higher for competitors (14 ranks higher – 9<sup>th</sup> place compared to 23<sup>th</sup> in the rank-list of non-competitors). The next big differences are that competitors are less interested in self-defense (9 places difference, 17<sup>th</sup> place compared to 8<sup>th</sup> place in the rank-list of non-competitors) and in aggressiveness control (9 places difference, 24<sup>th</sup> place compared to 15<sup>th</sup> in the list of non-competitors). The motivational power of health and fitness motivation is also lower for competitors (14<sup>th</sup> place, compared to 6<sup>th</sup> in the list of non-competitors – 8 places difference) – which is understandable if we remember that competitors are ready to risk their health and to get injuries in order to be successful. Curiously, relationship with the coach as a motive for practicing is placed 6 places lower in the groups of competitors (10<sup>th</sup> place compared to 4<sup>th</sup> place in the list of non-competitors). This shouldn't be understood as lack of appreciation and gratitude, more probably the role of the coach is instrumental for competitors, motivating only if it is well related to their successes.

From these results, it could be extrapolated that successful media promotion of combat sport for inactive people should be related to emotional reasons (feeling good, feeling happy, perceiving beauty of sport, feeling excitement and thrill); to the development of the will (which is very important in both profession and everyday life); to the personal growth under the directions of the master – the coach – who will be in close touch and in assistance; to the improvement of health and fitness, and also to learning techniques for defense of oneself and one's family. Conversely, motivation for affiliation and team work, promises for discounts, for successes, glory, rewards, etc. should not be used in the promotion. It would be a good idea to attach one of the already regular practitioners to the newcomer for the first 6 or at least the very first month in order to help with adaptation and increase the feeling of support and acceptance, which in turn will increase attendance.

## CONCLUSIONS

On the basis of the study conducted to identify the leading motives for participation in combat sport, the following main conclusions can be drawn:

1. Leading motives are emotional motives and personal development, especially the development of the will. They are the strongest motives for all practitioners, competitors or not.
2. Affiliation motivation does not add power to the participation motivation for combat sports.
3. The motivation of the adults of different age groups as well as different genders is almost identical; the biggest differences exist between motivation of competitors and non-competitors.
4. Participation motivation of competitors is achievement-oriented; they are highly competitive, need successes, challenges and self-confidence.
5. Participation motivation of non-competitors includes learning self-defense and also health and fitness motives, which are already not relevant for the competitor type.

## REFERENCES

1. Biddle, S. J. H., Fox, K. R., & Boutcher, S. H. Physical activity and psychological well-being. London, UK: Routledge, 2000.
2. Hyde, A. L., Maher, J. P., & Elavsky, S. Enhancing our understanding of physical activity and wellbeing with a lifespan perspective. *International Journal of Wellbeing*, 3, 98–115, 2013.
3. Landers, D. M., & Arent, S. M. Physical activity and mental health. In G. Tenenbaum & R. C. Eklund (eds.), *Handbook of Sport Psychology*, 3rd edition (469–491), Hoboken, NJ: John Wiley & Sons, 2007.
4. Lee, I.-M., Shiroma, E.J., Lobelo, F., Puska, P., Blair, S.N., Katzmarzyk, P.T. Effect of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy. *Lancet*, 380, 219–229, 2012.
5. Nocon M, Hiemann T, Müller-Riemenschneider F, Thalau F, Roll S, Willich SN. Association of physical activity with all cause and cardiovascular mortality: A systematic review and meta-analysis. *European journal of cardiovascular prevention and rehabilitation*, 5(3), 239–46, 2008.
6. Galper, D. I., Trivedi, M. H., Barlow, C. E., Dunn, A. L., & Kampert, J. B. Inverse

- association between physical inactivity and mental health in men and women. *Medicine & Science in Sports & Exercise*, 38(1), 173-178, 2006.
7. Colberg SR, Grieco CR. Exercise in the treatment and prevention of Diabetes. *Current Sports Medicine Reports.*, 8(4), 169– 75, 2009.
  8. Anderson, E., & Durstine, J. L. Physical activity, exercise, and chronic diseases: A brief review. *Sports Medicine and Health Science*, 1(1), 3-10, 2019.
  9. Moayyeri A. The association between physical activity and osteoporotic fractures: A review of the evidence and implications for future research. *Annals of Epidemiology*, 18(11), 827–835, 2008;
  10. Calatayud, J., Jakobsen, M. D., Sundstrup, E., Casaña, J., & Andersen, L. L. Dose-response association between leisure time physical activity and work ability: cross-sectional study among 3000 workers. *Scandinavian Journal of Public Health*, 43(8), 819-824, 2015
  11. Mackey M, Maher CG, Wong T, Collins K. Study protocol: The effects of work-site exercise on the physical fitness and work-ability of older workers. *BMC Musculoskeletal Disorders*, 8, 9–13, 2007
  12. Kaleta D, Makowiec-Dąbrowska T, Dziankowska-Zaborszczyk E, Jegier A. Physical activity and self-perceived health status. *International Journal of Occupational Medicine and Environmental Health*. 19(1), 61–69, 2006;
  13. Bogaert I, de Martelaer K, Deforche B, Clarys P, Zinzen E. Associations between different types of physical activity and teachers' perceived mental, physical, and work-related health. *BMC Public Health*, 14, 534, 2014
  14. Chastin, S.F.M., Abaraogu, U., Bourgois, J.G. et al. Effects of Regular Physical Activity on the Immune System, Vaccination and Risk of Community-Acquired Infectious Disease in the General Population: Systematic Review and Meta-Analysis. *Sports Medicine*, 51, 1673–1686, 2021
  15. Pedersen, B.K., Saltin, B. (2015). Exercise as medicine – evidence for prescribing exercise as therapy in 26 different chronic diseases. *Scandinavian Journal of Medicine & Science in Sports*, 25, 1–72.
  16. Päivärinne, V., Kautiainen, H., Heinonen, A., & Kiviranta, I. Relationships of leisure-time physical activity and work ability between different occupational physical demands in adult working men. *International archives of occupational and environmental health*, 92(5), 739-746, 2019
  17. Grabara, M., Nawrocka, A., & Powerska-Didkowska, A. The relationship between physical activity and work ability – A cross-sectional study of teachers. *International Journal of Occupational Medicine and Environmental Health*, 31(1), 1-9, 2018
  18. Wiese, C. W., Kuykendall, L., & Tay, L. Get active? A meta-analysis of leisure-time physical activity and subjective well-being. *The Journal of Positive Psychology*, 13(1), 57-66, 2018
  19. López-Bueno, R., Calatayud, J., Ezzatvar, Y., Casajús, J. A., Smith, L., Andersen, L. L., & Lopez-Sanchez, G. F. Association between current physical activity and current perceived anxiety and mood in the initial phase of COVID-19 confinement. *Frontiers in psychiatry*, 11, 72, 2020.
  20. World Health Organization, T. Global recommendations on physical activity for health. World Health Organization, 2010
  21. Carlson, S. A., Adams, E. K., Yang, Z., & Fulton, J. E. Percentage of Deaths Associated With Inadequate Physical Activity in the United States. *Preventing chronic disease*, 15, 2018.
  22. Blair, S. N. Physical inactivity: the biggest public health problem of the 21st century. *British journal of sports medicine*, 43(1), 1-2, 2009.
  23. Cunningham, C., O'Sullivan, R., Caserotti, P., & Tully, M. A. Consequences of physical inactivity in older adults: A systematic review of reviews and meta-analyses. *Scandinavian journal of medicine & science in sports*, 30(5), 816-827, 2020.
  24. Sallis R, Young DR, Tartof SY, et al. Physical inactivity is associated with a higher risk for severe COVID-19 outcomes: a study in 48 440 adult patients. *British Journal of Sports*



- Medicine* Published Online First: 13 April 2021.
25. Special Eurobarometer 472 - Sport and physical activity. December 2017 (Bulgaria) <https://webgate.ec.europa.eu/eurobarometer/api/public/deliverable/download?doc=true&deliverableId=65311> last accessed: 24.06.2021
  26. Slavin, R. *Educational Psychology: Theory and Practice*, 12th Edition, Pearson, 2017
  27. Герон, Е., Мутафова-Заберска, Ю. Мотивацията при физическата активност и спорта. Втора част: Видове мотивации. С., Авангард Прима, 2007
  28. Trembath, E.M., Szabo, A. and Baxter, M.J. Participation motives in leisure center physical activities. *Athletic Insight: the Online Journal of Sport Psychology*, 4 (3), 2002.
  29. Домусчиева - Роглева, Г. Аprobация на теста за определяне на мотиви за занимания със спорт (PMQ) в български условия. В: *Личност, мотивация, спорт*, Том. 9, 84-90. София, НСА, 2003
  30. Влахова, С. и Желязкова-Койнова, Ж. Мотивация за участие при трениращи бойни спортове. В: *Годишник на НСА*, т. 2, 152-157, 2019
  31. Brymer, E., & Schweitzer, R. The search for freedom in extreme sports: A phenomenological exploration. *Psychology of sport and exercise*, 14(6), 865-873, 2013.
  32. Breton, D. L. Playing symbolically with death in extreme sports. *Body & Society*, 6(1), 1-11, 2000
  33. Holdensgaard, D. Risikosport. What doesn't kill you, makes you stronger (Master's thesis, University of South-Eastern Norway), 2021
  34. Zhou, L., Chlebosz, K., Tower, J., & Morris, T. An exploratory study of motives for participation in extreme sports and physical activity. *Journal of Leisure Research*, 51(1), 56-76, 2020
  35. Kerr, J. H., & Mackenzie, S. H. Multiple motives for participating in adventure sports. *Psychology of sport and exercise*, 13(5), 649-657, 2012
  36. Heirene, R. M., Shearer, D., Roderique-Davies, G., & Mellalieu, S. D. (2016). Addiction in extreme sports: An exploration of withdrawal states in rock climbers. *Journal of behavioral addictions*, 5(2), 332-341.
  37. Körner, S., Heil, V., & Staller, M. S. Motive in der Selbstverteidigung: Eine qualitative und quantitative Studie am Beispiel Krav Maga und Wing Chun. In S. Körner, & L. Ista (Eds.), *Martial Arts and Society: Zur gesellschaftlichen Bedeutung von Kampfkunst, Kampfsport und Selbstverteidigung* (146-159). Feldhaus, Edition Czwalina, 2007
  38. Silva, A. L., & Quaresma, A. Motivation and martial arts and combat sports participation: a study protocol. *Revista de Artes Marciales Asiáticas*, 14(2s), 34-36, 2019
  39. Meyer, M., & Bittmann, H. Why do People Train Martial Arts? Participation Motives of German and Japanese Karateka. *Societies*, 8(4), 128, 2018
  40. Ko, Y. J., & Kim, Y. K. Martial arts participation: Consumer motivation. *International Journal of Sports Marketing and Sponsorship*, 2, 2-20, 2010
  41. Cynarski, W. *Martial Arts & Combat Sports: Towards the General Theory of Fighting Arts*. Wydawnictwo Naukowe Katedra, Gdansk, 2018
  42. Frederick-Recascino, C. M. Self-determination theory and participation motivation research in the sport and exercise domain. *Handbook of self-determination research*, 277-294. Rochester, NY: University Of Rochester Press, 2002
  43. Kusnierz, C. Motivations for starting combat sports training as seen by boxing and MMA contestants. *Revista de Artes Marciales Asiáticas*, 11(2s), 74-75, 2016
  44. Shields, D. L. L., & Bredemeier, B. J. L. *Character development and physical activity*. Human Kinetics Publishers, 1995
  45. Zach, S., Bar-Eli, M., Morris, T., & Moore, M. Measuring motivation for physical activity: an exploratory study of PALMS - the physical activity and leisure motivation scale. *Athletic Insight*, 4(2), 141-152, 2012
  46. Pelletier L. G., Fortier M. S., Vallerand R. J., Tuson K. M., Briere N. M. & Blais M. R. Toward a new measure of intrinsic motivation, extrinsic motivation and amotivation in sports: The sport motivation scale (SMS). *Journal of sport and exercise psychology*, 17, 35 – 53, 1995

47. Zangelidis, G., Zangelidis, S., & Martinidis, K. Comparative study of factors-motives in beginning practicing judo and karate (No. RefW-40-8234). Aristotle University of Thessaloniki, 2004
48. Ley, C. Participation Motives of Sport and Exercise Maintainers: Influences of Age and Gender. *International Journal of Environmental Research and Public Health*, 17(21), 7830, 2020
49. Biddle, S. J., & Bailey, C. I. Motives for participation and attitudes toward physical activity of adult participants in fitness programs. *Perceptual and Motor Skills*, 61(3), 831-834, 1985
50. Gill, D. L., Williams, L., Dowd, D. A., Beaudoin, C. M., & Martin, J. J. (1996). Competitive orientations and motives of adult sport and exercise participants. *Journal of Sport Behavior*, 19(4). 307-318, 1996
51. Burdzicka-Wolowik, J., & Góral-Radziszewska, K. (2014). Selected personality traits of women training combat sports. *Polish Journal of Sport and Tourism*, 21(1), 3, 2014