Revista de Artes Marciales Asiáticas
Volumen *11*(2s), 70-71 ~ 2016
DOI: 10.18002/rama.v11i2s.4176
http://revpubli.unileon.es/ojs/index.php/artesmarciales

RAMA
I.S.S.N. 2174-0747

Psychological and psychophysiological profile in combat sports

Alyona GRUSHKO[*1,2], Konstantin BOCHAVER[1], Alyona SHISHKINA[3], Dmitry KABANOV[1,4], Maria KONSTANTINOVA[1,2], Alexander VAVAEV[1], & Vladimir KASATKIN[1]

[1] *Moscow Center of Advanced Sport Technologies (Russia)*
[2] *Lomonosov Moscow State University (Russia)*
[3] *Boxing Club "Fight Gloves" (Russia)*
[4] *Russian State University of Physical Education, Sport, Youth and Tourism (Russia)*

5th IMACSSS World Scientific Congress Abstracts, Rio Maior (Portugal), October 6-8
Section: Psychological, pedagogic and didactics in MA&CS
Type: Oral communication

1. Introduction

Results in combat sport competition represent a combination of a variety of factors including psychological and psychophysiological skills (Matsumoto, et al., 2009; Slimani & Cheour, 2016; Ziv & Lidor, 2013). The purpose of current study was to compare psychological and psychophysiological variables (reaction time & hand-eye coordination, visual attention and memory, motivation and anxiety) of athletes with different sport experience and type of combat sports.

2. Methodology

Participants: 107 male athletes participated in the study (Mean age±SD: 19.1±4.75). The sample were divided in groups: a) according to the sport experience: intermediate athletes (*n*=50; Mean age±SD: 15.2±1.41 years) and elite athletes (multiple winners of Russian, European and World championships; *n*=57; Mean age±SD: 21.8±4.23 years); b) according to the type of combat sports: striking combat sports (boxing, kickboxing; *n*=33: 23 elite and 9 intermediate athletes; Mean age±SD: 20.7±4.22 years) and wrestling (judo, sambo, Greco-Roman wrestling; *n*=74: 33 elite and 41 intermediate athletes; Mean age±SD: 18.4±4.84 years).

Instrumentation: the following variables were tested (athletes completed tests in competition period before regular training): 1) *Choice reaction time* (2 alternatives) was assessed during 3-minute session (Thought Technology, n.d.); 2) *Reaction time & hand-eye coordination* was assessed by the completion of 1-minute 'Proactive' session on Dynavision D2 (after warming-up with the similar session) (Wells, et al., 2014); 3) *Visual attention*: a) the multiple object tracking ability in dynamic 3D-scene was assessed by completion of 1 'Core' session of Neurotracker (Legault & Faubert, 2012); b) the effectiveness of refocusing ('Red-Black Tables') and short-term memory ('Geometric figures') was assessed using computer based stimulation (Collection of psychological tests, 1995). In addition, athletes completed Russian versions of questionnaires: Sport motivation scale (Kasatkin, et al., 2012) and State-trait anxiety Inventory (Collection of psychological tests, 1995). The data were analysed in SPSS17.0 via Mann–Whitney *U* test.

3. Results

A comparison of the elite and intermediate combatants identified difference - elite athletes outperform less experienced combatants and demonstrate better abilities in: a) complex reaction time and hand-eye coordination: Mean RT±SD=0.74±0.09 vs 0.77±0.08 seconds (p<.01); b) choice

* *Email:* al-grushko@yandex.ru

reaction time: Mean RT±SD (left hand) = 264.1±24.57 vs 286.5±29.93 ms (p<.01); Mean RT±SD (right hand) = 258.4±23.63 vs 278.7±34.23 ms (p<.01); Mean RT±SD (left foot) = 334.3±26.25 vs 354.5±41.93 ms (p<.05); Mean RT±SD (right foot) = 335.4±25.43 vs 355.5±43.24ms (p<.05); c) efficacy of short-term memory: Mean efficacy±SD = 0.79±0.16 vs 0.86±0.12 (p<.01); d) efficacy of refocusing: Mean tempo±SD = 4.2±1.25 vs 5.17±0.90 (p<.01). Elite athletes also demonstrated significantly highest intrinsic motivation (to experience stimulation) (p<.05). Difference in state and trait anxiety between groups of elite and intermediate athletes were not revealed (p>.05).

Difference in psychological and psychophysiological variables in athletes of striking and wrestling types of combat sports were also analyzed (we compared only the elite athletes groups): no statistical difference were found (p>.05).

4. Discussion and conclusion

The purpose of current study was to investigate how psychological and psychophysiological variables contribute to sport experience and type of combat sports. Results showed that elite athletes outperform intermediate combatants in reaction time, refocusing and short-term memory. In addition, the elite athletes in comparison with the less experienced athletes are more intrinsically motivated to experience emotional stimulation in sport. We can propose different ways to interpret the results: first, performing sport can improve such variables as reaction time, memory, attention and motivation; second, the athletes who have highly trained abilities become able to perform better than less skilled athletes; third, the complex approach to evaluation and training athlete's skills can significantly upgrade his or her competitive abilities. Discussing the implications of the results we can propose to organize a number of specific profiles for each combat sport including psychological, psychophysiological and performance indicators.

References

Collection of psychological tests (1995). Moscow: KSP. (In Russian).

Kasatkin, V.N., Vykhodets, I.T., Bochaver, K.A., & Kvitchastyi, A.V. (2012). About diagnosis of motivation in sport: adaptation or questionnaire «Sport motivation scale». *Sport psychologist*, *1*(25), 38-43 (in Russian).

Legault, I., & Faubert, J. (2012). Perceptual-cognitive training improves biological motion perception: evidence for transferability of training in healthy aging. *Neuroreport, 23,* 469–473.

Matsumoto, D., Konnon, J., & Ha, H.Z. (2009). Sport psychology in combat sports. In R. Kordi, N. Maffulli, R. Wroble, & W. Wallace (Eds.), *Combat sports medicine* (pp. 41-51). London: Springer-Verlag.

Slimani, & M. Cheour, F. (2016). Effects of cognitive training strategies on muscular force and psychological skills in healthy striking combat sports practitioners. *Sport Sciences for Health, 03* (in Press).

Thought Technology (n.d.). Reaction Time Suite (pp. 3-98). Retrieved from http://www.thoughttechnology.com/

Wells, A. J., Hoffman, J. R., Beyer, K. S., Jajtner, A. R., Gonzalez, A. M., Townsend,J. R., et al. (2014). Reliability of the dynavision d2 for assessing reaction time performance. *Journal of sports science and medicine, 13*(1), 145–150.

Ziv, G., & Lidor, R. (2013). Psychological preparation of competetive judokas – a review. *Journal of sports science and medicine*, *12*(3), 371–380.

Key words: Sport psychology; Judo; Sambo; Greco-Roman wrestling; Boxing; Kickboxing; combat sports.