THE INFLUENCE OF THE SPECIFIC ACTIVITIES IN REAL FIGHT AS A PREDICTOR TO THE WIN AS A CRITERION IN COMPETITIVE KICKBOXING

Edin Krupalija[1], Safet Kapo[2], Branko Cikatić[2], Denis Stojnić[1] and Aldvin Torlaković[1]

[1] Team Golden Glory, Eindhowen, Netherlands
[2] Faculty of sports and physical education, Sarajevo, Bosnia and Herzegovina

Original scientific paper

Abstract

In the reasearch, conducted on Balkan's championship in kickboxing (Krupalija 2010) on sample of 78 examinees, 14 varimax factors were separated, described as a specific activities in real fight. The goal of this research was to determine to what extent those 14 varimax factors, described as a specific activities in real fight, have influenced the final result (win-loss) in kickboxing. Regarding goal of the work, specific fight actions were positioned as predictors and win variable was defined as a criterion. We determined which variable-specific action in fight had the most significant influence to the win variable (win in kickboxing disciplines Full Contact and Low Kick) using the regressive analysis. One peculiar thing is that with some individual variables (actions) that mostly wasn't the case- FACTOR10 (rotary kick with low range) and FACTOR3 (specific defense activities), while we may single out FACTOR13 (specific offensive enactment with right, stronger arm), then FACTOR11 (specific combination of defense and attack from right side of the body), and finally FACTOR2 (rotations in space), from those with positive sign. This implies that fight success must be observed as a composite activity, not as an activity with any limited (one or more) sets of actions in order to win.

Key words: *kickboxing, kick box, win, fight, martial arts*

Introduction

Contemporary approach to the preparation and systematization of sports training is based on the situational models base (equation of complexity model specification), where simple actions in high rate and nearer to the opponent dominate (Kapo, 2006.). Hitherto researches through science and practice show that kickboxing structure contains attack, defense, counterattack and attack-intercept shape of fighting (Kapo and associates, 2008.). Aside from manifest facts it is important to perceive the lantent mechanism that induce the fighter to the certain activities. Devonport has identified three psychological characteristics that contribute to success in kickboxing in his research, that was conducted with the goal to indentify the mental abilities and physological characteristics that are considered contributive to the success in kickboxing: 1) high self-efficiency, 2) high motivation and 3) mental toughness (Devonport, 2006.). Researches have shown that beside those mentioned activities in tactical sense, technical-tactical forms exist in fight (Krupalija, 2010.), such as: 1) left arm and foot activities, 2) activities with rotations in space, 3) specific defense activities, 4) specific offense activities, 5) offense enactment to the center body (abdomen), 6) offense activities with great trajectories of lower and right extremities, 7) offense activities with left extremities, 8) agresive offense tactics, 9) wide arches kicks activities, 10) rotary kicks with lower range, 11) specific combination of defense and attack from the right side of the body, 12) specific offense enactment with goal of provoking the opponent, ie breaking opponent's guard, 13)

specific offense enactment with right arm, 14) specific offence enactment with right foot. In this paper we will describe to what extent this mentioned activities influence the win in kickboxing.

Methods

Methods of data processing
Establishment of the relations between morphological characteristics and technical elements was done by regressive analysis. Regressive analysis was used for the establishment of the relations between two sets of variables, but in cases with more predictors and only one criterion. This way we estimate the influence of the predictors to that criterion (Bonacin, 2010). Regarding goal of the work, specific actions in fight are placed in predictor's position (Krupalija, 2010.), and win variable was defined as a criterion. This way it could be established which variable-specific actions in fight have a significant influence to the win variable, ie win in kickboxing disciplines Full Contact and Low Kick.

Variables sample

Predictor variables described by the varimax factors (Krupalija, 2010):
1. varimax factor was saturated with the variables LIJDIRGL (0.81), LIJNKRUD (0.76), DESNKRUD (0.77), LIJBLNNU (0.65) and statistically important (although not primarily for this dimension) with the variables LIJKROGL (0.32) and IZMICANJ (0.37). By all accounts it is about *left foot and arm activities,* ie foot and arm closer to the opponent.

Left foot and arm being closer to the opponent, competitors fight and prepare for kicks with the dominant right hand ie right foot, therefore the significance of the left foot and arm was shown in this research for the kickboxing disciplines Full Contact and Low Kick. Statistical significance is great, as shown.

2. varimax factor was saturated dominantly with the variables LIJKROGL (0,58), LIJUDNOGTJ (0,50), ESKIVAZEL (0,67), ESKIVAZED (0,64), IZMICANJ (0,71) and also with the DESBLRNU (0,31), DESDIRGL (0,34) and LIJKROST (0,29). It seems that this is about the factor that describes the *activities with rotations in space* which have, as their goal, defense activities in purpose of commiting DESDIRGL (0,34) (right direct to the head). Taking all mentioned into account, we may say that *dominant role in the second factor is performed by the body balance*.

3. varimax faktor was projected mostly by the variables DESAPEGL (0,42), LIJBLRRU (0,86), DESBLRRU (0,92), DESBLRNU (0,55) and somewhat by the ESKIVAZEL (0,32). This regards *a specific defense activities* ie the blocks with foot and arm that are increased with evasion because of their efficiency.

4. varimax faktor was described by the variables DESDIRST (0,80), LIJNNAPR (0,75), DESUDNOGTJ (0,59) and somewhat with the LIJBLRNU (0,34). It is obvious that this is about *specific offense activity*. Observed from the tactical point of view, this factor is used against taller opponents and contains mostly the strong kicks to the body, in order to make the opponent lower his guard and expose vital head points.

5. varimax faktor was described by the LIJDIRST (0,75), LIJKROST (0,53), DESKROST (0,78) and significantly by the DESKAKAT (0,31). This type of structure presents *the offensive enactment to the center body (abdomen)* with arm techniques that are used, as well as in the previous factor, mostly on taller opponents, but in this structure it is about offensive enactment to the abdomen area. Complex technical element DESKAKAT (0,31) confirms the fact that examinees and competitors of this championship were referent in technical-tactical sense.

6. varimax faktor is defined by the variables DESVKRUD (-0,71), DESUSMAV (-0,84) which clearly presents *the offensive activities with great trajectories with lower right extremities*. Observed from the biomechanical point of view, this structure is very efficient because it has big kick speed at the expense of big circumferential kick speed, but being too difficult to perform in practice, we may say that this is why it is in negative relation. Tacticaly observed, it is highly possible if DESUSMAV (-0,84) is used for feinting the opponent or breaking his guard in continuity - DESVKRUD (-0,71).

7. varimax faktor is saturated mostly with the variables LIJBNAPR (-0,85), LIJKAKAT (-0,79), LIJVKRUD (-0,51) that present *the offensive activities with left extemies* done in combinations and developing the course of fight.

8. varimax faktor is saturated with the variables DESBNAPR (0,83), DESKAKAT (0,83), LIJBLRNU (0,47), but significantly with the DESAPEGL (0,32) and LIJUDNOGTJ (0,34). This set describes the specific combination of activities, probably blocks and kicks. This is about the situations where the kick must be received and blocked in order to be given later on. *This is an aggresive offense tactics*.

9. varimax faktor is described by the variables DESDIRGL (0,63), LIJAPEGL (0,58), LIJAPEST (0,68), and to a lesser extent but significantly by the variables DESKROGL (0,35), LIJNKRUD (0,34), LIJUDNOGTJ (0,38), LIJVKRUD (-0,35) and ESKIVAZEL (0,31). This is about *wide arhes kicks activities* that are used against closed posture of the opponent or against the shorter fighters.

10. varimax faktor is defined dominantly by the variable DESRUKOKR (0,84), and secondary by the variables LIJKROGL (0,46), LIJKROST (0,38), DESKROGL (0,31) and LIJBLNNU (0,33). This dimension, in principle, *presents the rotary kicks with lower range* probably used in close fight (clinch).

11. varimax faktor is described by the variables DESNNAPR (-0,84) and DESBLNNU (-0,75), that clearly presents *the specific combination of defense and offense from the right side of the body*. Movement structure of both kicks provides offense and defense activity- kick is preceded by the block.

12. varimax faktor is defined by the variables LIJUSGER (-0,82), and to a lesser extent by the DESAPEGL (0,37) and DESBNAPR (-0,35). It seems that it presents *the specific offense enactment with the goal of provoking the opponent, ie breaking his guard* or ensuring the counterattack.

13. varimax faktor is saturated with the variables DESAPEST (0,86) and DESKROGL (0,41), and to a lesser extent with the LIJKROGL (0,33), LIJAPEST (0,34) and DESAPEGL (0,33). The best description of this factor could be included in the *specific offense enactment with the right hand* but with the logical support from the left hand-specific actions manifested by boxing elements and obviously implemented in kick series.

14. varimax faktor is saturated with the variable DESUSIRG (-0,88) and to a lesser extent but still significantly with the variable DESVKRUD (-0,48). It seems that it presents *the specific offense enactment with right foot* along with the potential opening of the opponent.

Criterion variable:
Win.

Examinees sample
Research is made on sample of 78 examinees, participants on the Balkan's championship in kickboxing from Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Montenegro and Serbia, aged from 18 to 33 years, that took place in Tesanj (BiH) in 2007.

Results and discussion

Results of the regressive analysis of variable WIN as a criterion and 14 varimax factors described as a specific activities in fight.

Table 1. Regression Summary for Dependent variable: POBJ (vrx.sta) R= .83161059 R˅= .69157618
Adjusted R˅ = .60345509 F(14,49)=7.8480 p<.00000, Std.Error of estimate: 1.2638

	BETA	St. Err. of BETA	B	St. Err. of B	t(49)	p-level
Intercpt			3,19	0,16	20,18	0,00
FACTOR1	0,09	0,08	0,17	0,16	1,08	0,29
FACTOR2	0,23	0,08	0,45	0,16	2,85	0,01
FACTOR3	-0,20	0,08	-0,41	0,16	-2,55	0,01
FACTOR4	-0,04	0,08	-0,08	0,16	-0,51	0,61
FACTOR5	0,14	0,08	0,29	0,16	1,81	0,08
FACTOR6	-0,13	0,08	-0,26	0,16	-1,64	0,11
FACTOR7	0,15	0,08	0,30	0,16	1,88	0,07
FACTOR8	0,03	0,08	0,07	0,16	0,41	0,68
FACTOR9	0,11	0,08	0,22	0,16	1,37	0,18
FACTOR10	-0,42	0,08	-0,84	0,16	-5,29	0,00
FACTOR11	0,31	0,08	0,61	0,16	3,85	0,00
FACTOR12	0,00	0,08	-0,01	0,16	-0,04	0,96
FACTOR13	0,50	0,08	1,00	0,16	6,27	0,00
FACTOR14	-0,02	0,08	-0,05	0,16	-0,29	0,78

In table 1 there are indicators of the regressive analysis of the variable WIN as a criterion and a set of the previously isolated 14 varimax factors. Results show that regression is statistically important on the level p=0.000, by which we confirm the hypothesis that specific actions in fight have the significant influence on the final result (win-loss). One especially interesting thing is that in cases of some independent variables (actions) that wasn't mostly the case, meaning that sucessfulness in fight should be observed as the composite activity, not as an activity with any limited (one or more) sets of actions in order to achieve the win. From individual predictors to the criterion variable WIN, it is imortant to single out the FACTOR13 (specific offense enactment with the right, probably stronger, arm), then FACTOR11 (specific combination of the defense an offense from the right side of the body) and finally FACTOR2 (rotations in space) with positive sign. With negative sign as a significant predictors of the criterion variable WIN, FACTOR10 (rotary kicks with lower range) and FACTOR3 (specific defense activities) are isolated. All this means that the wins were achieved by the fighters who used more the specific offense activity, probably with the dominant hand (FACTOR13) together with the specific combinations, and those who had better control of space management. All this together present the higher level of skills in general.

Conclusion

In short, we may conclude that the biggest probability of winning have those competitors who „attack and are skilled", and also that usage of the rotary kicks with lower range and defense activities do not clearly lead to win. In general, if we observe the components isolated and through the prism of their forms and principles and in context of this research, the succesfulness in offense is statistically most important with the right (stronger) arm and with the combination of the defense and offense (counterattack) from the right side of the body, which, in synergy with the rotations in space (the body), as a statistically important factor, may be described with one word-skills. Observing the succesfulness in offense with arm techniques from right (stronger) side and combination of the defense and offense (counterattack) with the right side of the body also, it may be noticed that the derived techniques in sense of intensity do deserve the referee pointing as a clear points, because they are the consequences of the stronger kicks and they are easily noticable. Definition of the term skills signifies the learned or acquired part of a behaviour. The term skills differents itself this way from the term abilities, that is considered as the prerequisite for skills realization. On the other hand, Croatian general encyclopaedia defines the general term skill as a possibility of an individual to quickly and accurately perform the series of systematically organized operations or sets of operations in order to easily and more sucessfully perform the certain assignment. The biggest master of martial arts of all times Bruce Lee, observing the term skill from the prism of martial arts, said that the skill is best acquired with learning accuracy and precision, before anyone tries to perform the act of skill with a lot of strenght and speed" (Lee, 1975.). At the end, we may still conclude that successfulness in a fight should be observed as the composite activity, not as an activity with any limited (one or more) sets of actions in order to achieve the win. However, the research also gave the better view to the hierarchy of the specification of success equasion in kickboxing.

Literature

Bonacin, D. (2010). Introduction to quantity methods (In Croatian). Travnik: Faculty of Education.
Devonport, J.T. (2006). Perceptions of the contribution of psychology to success in elite kickboxing, School of Sport. *Journal of Sports Science and Medicine*, 22, 99-107.
* * * (2009). *Hrvatska opća enciklopedija.* (Vol. 11, pp. 444). Zagreb: Lex. Institute Miroslav Krleža.
Kapo, S. (2006). *Structural analysis and model of K-1 top level fighters*. Disertation (In Bosnian). Sarajevo: Faculty of sports and physical education.
Kapo, S., Bonacin, D., Rađo, I., Kajmović, H., & Cikatić, B. (2008). Situational developing profile of the K-1 Grand-prix tournament winners. *Acta Kinesiologica*, *2*(2), 37-44.
Krupalija, E., Kapo, S., Rađo, I., Ajnadžić, N., & Simonović, D. (2010). Structural analysis of the situational efficiency in the kickboxing disciplines Full Contact and Low Kick. *Homo Sporticus*, *2*, 36-40.
Krupalija, E., Blažević, S., & Torlaković, A. (2011). *The influence of the morphological characteristics on the efficiency* of the technical elements performance in kickboxing disciplines Full Contact and Low Kick in real fights. *Acta Kinesiologica, 5*(1), 43-46.
Lee, L. (1975). *Tao of Jeet Kune Do*. Ohara Publications, Inc.

UTJECAJ SPECIFIČNIH AKTIVNOSTI U STVARNOJ BORBI KAO PREDIKTOR POBJEDE KAO KRITERIJA U NATJECATELJSKOM KICKBOKSINGU

Sažetak

U istraživanju koje je provedeno na Balkanskom prvenstvu u Kickboxing sportu (Krupalija, 2010) na uzorku od 78 ispitanika, izdvojeno je 14 varimax faktora, opisanih kao specifične aktivnosti u realnoj borbi. Cilj ovog istraživanja je da se utvrdi u kojoj mjeri 14 varimax faktora, opisanih kao specifične aktivnosti u realnoj borbi, imaju značajan utjecaj na finalni rezultat (pobjeda-poraz) u Kickboxing sportu. Shodno cilju rada, u prediktorsku poziciju postavljene su specifične akcije u borbi, a za kriterij definirana varijabla pobjeda. Regresijskom analizom je utvrđeno koja od varijabli – specifične akcije u borbi ima značajan utjecaj na varijablu pobjeda, tj. na pobjedu u Kickboxing disciplinama Full Contact i Low kick. Ono što je posebno zanmljivo jest da u slučaju pojedinih varijabli (akcija) to uglavnom nije bio slučaj - FACTOR10 (kružni udarci manjeg dometa) i FACTOR3 (specifične odbrambene aktivnosti), dok s pozitivnim predznakom naročito je za izdvojiti FACTOR13 (specifično napadačko djelovanje desnom, jačom rukom), zatim FACTOR11 (specifičnu kombinaciju odbrane i napada s desne strane tijela) i konačno FACTOR2 (rotacije u prostoru). To znači da uspješnost u borbi treba promatrati kao kompozitno djelovanje, a ne djelovanje bilo kojim ograničenim (bilo to jednom ili više njih) skupom akcija kojima se pobjeda postiže.

Ključne riječi: *kickboxing, kick box, pobjeda, borba, borilačke vještine*