

Strategic-tactical optimization in hand-to-hand combat: the mastery of grappling as a determining factor in encounters

Ronald Condé

Universidade Internacional (UNINTER)

Key words: hand-to-hand combat, strategy, tactics, optimization, methodological systems, public security

Summary

Introduction. The present work had for objective to investigate the role mastery of grappling, chiefly on the ground, considering the existence of factors whose impact extends beyond the sporting spheres, although in which they can be potentiated.

Materials and methods. The literature review has been the procedure adopted to accomplish this work, including books and case studies from which the data were extracted and interpreted in their set.

Results. The studies analyzed converge pointing out the primacy of the grappling under striking in MMA events. Besides, there is a trend in the sense that the higher the qualification of the fighters, the more expressive the incidence of their performance on the ground, that which, in turn, suggests that the issue is not exhausted in the mere field of grappling. Some studies have shown that, even within the context of grappling battles, the groundwork effectiveness indexes are still the most expressive

Conclusion. Taking into account the athletes performances as well as the vulnerabilities presented by the group of law enforcement officers analyzed, some guidelines have been drawn up in order to contribute to the improvement of the methodological systems in force. 1- Whether in the sports sphere, or in the war against crime, the main approach must be based on grappling, even it is accomplished in a context in which it must be associated to striking. 2- Ground fight qualification is an imperative not only for succeeding in sporting competitions but also for survival in non-rules encounters. 3- Brazilian Jiu Jitsu (BJJ) must be the central pillar of modernization of the current hand-to-hand combat systems, in order to reconfigure them to the new modern combat scenario, where more and more specific ground fighting skills are required besides other capabilities.

Introduction

In the Martial Arts and Combat Sports fields, tactics can be implemented through dissimulation, expressed in the true objectives concealment, as well as in providing false motor data to the adversary in order to subjugating him through the stratagem [1]. However, dissuasive actions can also be neutralized by impelling the opponent to deal with a wide variability of actions that causes him discomfort, breaking his attention and therefore making his strategy unfeasible [2,3]. In light of this, it is possible to appreciate the importance of technical versatility for evaluating the fighters strategic-tactical potentialities, as well as the study of individual technical profiles that enables, through induction, to derive intelligible conclusions that can culminate in the formulation of effective tactical plans [4].

It is observed that the regulation of each modality determines different tactical dynamics among each other [5], although

the analysis come to accomplishing in a predominantly context of grappling fight, in which there is a set of motor actions that is common to the modalities – for example, the technical gesture Armlock, whose occurrence is verified both in Judo [6] and Brazilian Jiu Jitsu [7]. This means that each of these dynamics tend to be singularized according to the rule, changing even within the same modality in different periods of time and spaces, and may even increase the capitalization indexes of points, as well as result in the preeminence of offensive lines under defensive ones [8] and, in other cases, to end leading to the decreasing of effectiveness indexes [9].

In spite of the conditionings which come from competitive regulation, there are certain strategies whose effectiveness goes beyond the sporting sphere and, therefore, tend to be verified in other contexts, regardless of the existence of rules, such as in military incursions and, in general, in the use of force in law enforcement operations [10]. However, the sport-

ing competition can also be directed towards the development of skills related to the encounters of such nature [11]

Strategy and tactics

More important than conceptualizing it's opportune to understand that both are capabilities that are located in a domain beyond the corporeal and sporting, since as they are the very pillars of the Art of War [12]. However, considering the purpose of the present work that does not intend to be exhausted in terms of terminology discussions, a definition coming from the Science of Sports Training becomes quite pertinent, because its meaning follows the same direction of the War Science's one, and not just metaphorically, as it has already pointed out [13], but, above all, in its practical aspects. In light of this, according to Platonov [1] (p. 146):

(...) strategy can be understood as a high level of knowledges and practical activity that ensures the achievement of the previously established objectives with observation in the fundamental laws that act in the concrete field, in the organization of the respective tasks and in the choice of the forms and the necessary methods for their accomplishment. The tactic, in turn, consists of the theory and practice of planning and carrying out specialized activities determined to achieve certain objectives in concrete situations of conflicts based on principles, schemes and norms of behavior formulated according to a regulation. (...)

Materials and methods

Through Google Scholar engine, a bibliographic survey was carried out, by consult keywords that are pertinent to the scope of the present study. Although the analysis was based on the statistical results of the studies, it was taken into account, according to Clawsewitz (p.20) [12], that in the case of strategy, „there are factors not susceptible to mathematical analysis”. It was therefore sought to analyze the following studies not only from a purely logical point of view, but, above all, from a dialectical exegesis.

Results and Discussions

For Glazistov [14], already in the stage of initial preparation of future combat athletes should be contemplated the elementary tactical preparation, since after this stage the competitive activity begins. Due to the correlation between the level of performance and the solicitations of cognitive order, it is fundamental that, since childhood, the improvement of tactical skills is coupled to the intellectual development of the subject, by orienting both through a set of tasks of theoretical training, as well as practical training [15].

According to Plotnikov [16], after conducting a research with Judo coaches: „even qualified athletes make serious mistakes in the level of tactical preparation.” His findings showed that most of the tactical preparation (54.3%) is concentrated in the preparatory actions to perform the hold.

Analyzing the performance of elite athletes of the Greco-roman style in high level competitions, such as the 2012 Olympic Games, it was verified that, regardless of the level of technical preparation, or the technical repertoire that an athlete has in his favor, the application of the technical gestures is directly conditioned to the tactical potential of the sportsman, that is, without an adequate tactical preparation the application of the technique becomes unfeasible [17]. Through this study, Tropin verified that another factor of influence is the weight division in which the athletes are found. From the analysis of 55 final matches, it was identified the predominance of 15 technical gestures between the technical arsenal of the medalists. It was found that although athletes in the light-weight categories (55 kg, 60 kg) used less techniques than the medium ones (66 kg, 74 kg, 84 kg) and heavy ones (96 kg, 120 kg), they employed more frequently those whose require more complex coordinating characteristics. In addition, a variability in effectiveness and efficiency in the attacks was verified, by which the heavier athletes displayed indexes of 71%, whereas the light ones, 57%; and the medians, 53%. It was also identified that the moment that offers greater possibilities of evaluation of the tactical viabilities of the athletes is the final part of the competitions.

However, tactics not only does condition, but also is conditioned. And not only by the rules of competitions, but also by strategy. If, on the one hand, winning actions in the strategic plan reduce the tactical possibilities of the opponent; on the other, a tactic, logically conceived and employed, determines a priori the success of the application of the technique, since these are the three planes of development of the combat, between whose interaction there is a hierarchy in which tactic is governed by strategy, whereas technique is governed by the tactics [1].

Taking account a tactical and strategical preparation optimization of judokas, Boguszewski [18] evaluated the combat dynamics involving 28 judokas finalists of the Olympic Games 2016, who performed 14 matches analyzed in 10-second sequences. The analyzes were based on the following indexes: 1 – Activity; 2 – Offensive Activity; 3 – Offensive Actions Effectiveness; 4 – Counterattacks Effectiveness; 4 Defensive Effectiveness. In the course of the 14 finals matches, it was observed 108 technical actions, involving grappling and throwing actions, of which only 16 (15%) were effective. Although more frequent, only 12% of the throwing techniques (Nage-Waza) were able to achieve scores. On the other hand, although with less incidence, the ground techniques (Ne-Waza) displayed an effectiveness index of 50%.

Sterkowicz et al. [19], by analyzing the technical application by judokas in Polish championships, found that the medalists actions, in addition to displaying significant effectiveness in terms of throws connected with trunk rotation, attacks and counterattacks, displayed a high effectiveness index concerning to ground techniques. According to Kodokan classification, the techniques most effectively applied were those which occurred on the groundwork.

Mirka et al. [20] showed that, among Olympic judokas, the winners presented a frequency of ground fighting activity higher

than the losers ($p=0.018$), and winning athletes and losing athletes in non-Olympic tournaments ($p<0.001$). It was also identified that even losing olympic athletes tend to display a higher frequency of ground activity than non-olympic ones, either in relation to the winners ($p=0.033$), or the losers ($p=0.045$).

In analysis of time-motion in order to identify the workload in Mixed Martial Arts (MMA) combats, Kirk et al. [21] found that athletes spent most of their active combat time in the clinch, that is, in grappling fight, and the only significant difference between winners and losers could be verified in terms of the number of takedowns effectively applied.

However, by analyzing technical-tactical proficiency of MMA athletes, Adam et al. [22] found that approximately 50% of the attacks were ended by actions conducted on the ground, from which it can be achieved more significant results in terms of a higher effectiveness to the combat. In the same direction, by performing a time-motion analysis in MMA combats, Del Vecchio et al. [23] verified that half of the encounters were ended on the ground through high-intensity sequences.

Similar trend can be found in other field. Combatives [24] points out that, although striking is included in the global strategy of combate, it is not considered an efficient way to defeat the opponent, as opposed to submission techniques, such as the chokes, which are considered the most effective technique to beat the opponent. However, in spite of the distinct purposes, through the sporting competitive activity it is possible to investigate those tactical dynamics that also are explicitly present in urban battles, as it can be observed in the study of analysis of the level of Russian police officers and cadets readiness, regarding their capabilities for acting against criminals. Through this research, Osipov et al. [10] evaluated 58 individuals in the course of 256 Sambo tournaments, in which 8204 technical actions were performed. It was verified that, besides other causes, due to the preferential focus in striking, it is necessary to seek for better parameters in teaching, by changing the training system of combat, because the significant indexes of loss of submission holds (68%) and submission locks (37.5%) were considered unacceptable by the analysts. It was also verified vulnerabilities regarding defensive skills against the opponent's attack on the ground.

By conducting an analysis to identify typical mistakes in submission locks execution by Ukrainian cadets, Danylchenko and Khabinets [25] concluded that, despite the abundant literature concerning hand-to-hand combat training, the methods are still empirical. However, although both the Sambo and Modern American Combatives include grappling, the first one, on which the previous study was based, besides Judo, does not have its system specialized in ground fight while the

second one is based on Brazilian Jiu-Jitsu, as it was demonstrated by a comparative study between many and different hand-to-hand combat systems [26].

Conclusion

In spite of the influence of anthropometric data and competitive regulation in the process of strategic-tactical guidelines configuration for hand-to-hand combat, the mastery of grappling, especially on the ground, is justified by factors whose impact extends beyond the sporting spheres, where, however, they can be improved. The studies analyzed converge pointing out the primacy of the grappling under striking in MMA events. Besides, there is a trend in the sense that the higher the qualification of the fighters, the more expressive the incidence of their performance on the ground, that which, in turn, suggests that the issue is not exhausted in the mere field of grappling. Some studies have shown that, even within the context of grappling battles, the groundwork effectiveness indexes are still the most expressive. Modern American Combatives, one of the most modern systems of hand-to-hand combat, is orientated not only for grappling, but also for the fighters groundwork qualification, by which reason it is based directly on BJJ. As it was verified, some studies even recommend a teaching methods revision of some schools in order to reduce the indexes of technical failures on the ground, where vulnerabilities were detected, so that the effectiveness and efficiency levels of the combatants in the war against crime can increase. In light of this, it is suggested a permanent influx of BJJ in both methodological plans of professional sports teams and public institutions, since its axiomatic effectiveness on the ground makes it a platform for the construction of modern training methodological systems of combat, that which enables harmonizing the search for overcoming eventual gap with the preservation of the traditions in which one can be based. Therefore, it can be drawn the following guidelines:

Whether in the sporting sphere, or in the war one, the main approach must be based on grappling, even it is accomplished in a context in which it must be associated to striking.

Ground fight qualification is an imperative not only for succeeding in sporting competitions but also for survival in non-rules encounters.

Brazilian Jiu Jitsu must be the central pillar of modernization of the current hand-to-hand combat systems, in order to reconfigure them to the new modern combat scenario, where more and more specific ground fighting skills are required to enable the goals achievement in challenging combats.

References

1. Platonov VN. Tratado Geral de Treinamento Desportivo. São Paulo: Phorte, 2008
2. Barna T. Elite Wrestlers Orientation to Tactical information. International Journal of Wrestling Science 2013; 3(1), 10-16
3. Weineick J. Manual de Treinamento Esportivo. 2. ed. São Paulo: Manole, 1986
4. Adam M, Szczepańska A. An individual profile of Aneta Szczepańska's technical-tactical preparation. Journal of Combat Sports and Martial Arts 2011; 2(2), 125-131

5. Vamplew W. Playing with the rules: Influences on the development of regulation in sport. *The International Journal of the History of Sport* 2007; 24, 843–871
6. Ioan-Nelu P, Vasile S. Physics and biomechanics-elements of analysis in judo. *Studia Universitatis Babeş-Bolyai, Educatio Artis Gymnasticae* 2011; 56 (4), 65-86
7. Condé R. Armlock in the closed guard: kinematic consequences to the kinetics of the technical gesture. II Simpósio Nacional de Artes Marciais, Lutas e Esportes de Combate, 2016
8. Tünnemann H. Evolution and Adjustments for the New Rules in Wrestling. *International Journal of Wrestling Science* 2013; 3 (2), 94 104 quoted by Miarka B. Demandas técnico-táticas e fisiológicas de combates da luta olímpica. *Revista de Artes Marciais Asiáticas* 2016; 11 (1), 18-31
9. Boguszewski D. Relationships between the rules and the way of struggle applied by top world male judoists. *Archives of Budo* 2011, 7, 27-32
10. Osipov A, Kudryavtsev M, Galimova A, Zhavner T, Fedorova P, Shulyatev V, Struchkov V, Pesniaeva N. Analysis level of the special proficiency of cadets and officers of the Internal Affairs authorities of the Russian Federation to the physical interdictory effort by criminals. *Journal of Physical Education and Sport* 2017; 17 (2), 602 – 607
11. Wakefield W. *Playing to win: sports and the American Military, 1898-1945*. Albany: State University of New York Press, 1997 quoted by Cancella K. Os diferentes usos do esporte em situações de mobilização militar: um estudo comparativo entre as experiências brasileiras e estadunidenses no contexto da primeira grande guerra. *Recorde* 2016; 9 (1), 1-34
12. Clausewitz CV. *Da Guerra 1832-1834*. Brasília: Martins Fontes, 1979
13. Sun L. *A cognitive study of war metaphors in five main areas of everyday english: Politics, Business, Sport, Disease and Love*. Kristianstad: Univerzitet u Kristianstadu, 2010
14. Glazistov AZ. Technique of technical-tactical preparation in sports hand-to-hand Fight at the stage of elementary education. *European Journal of Natural History, Moscow* 2008; 4, 78-79
15. Gropler H, G Thiess. Inhalt und Methodik der Ausbildung sporlicher techniken im Sportunterricht und Anfängertraining. *Theorie und Praxis der KK 8* 1980; 586-588 quoted by Weineick J. *Manual de Treinamento Esportivo*. 2. ed. São Paulo: Manole, 1986
16. Plotnikov VI. The Planning of Tactical Preparation at The Process of Improvement of Sporting Mastery of Judoists. *European Journal of Natural History* 2010; 4, 37-38
17. Tropin YM. Analysis of Technical Tactical Training of Highly Skilled Fighters of Greco-roman Wrestling. *Physical Education of Students* 2013; 2, 59-62
18. Boguszewski, D. Analysis of the Final Fights of the Judo Tournament at Rio 2016 Olympic Games. *Journal of Combat Sports and Martial Arts*. 2016; 7(1), 67-72
19. Sterkowicz S, Lech G, Almansba R. The course of fight and the level of sports achievements in judo. *Archives of Budo* 2007; Vol. 3: 72-81
20. Miarka B, Fukuda DF, Heinisch H, Battazza R, Del Vecchio F, Camey S, Franchini E. Time-motion analysis and Decision Making in Female Judo Athletes during Victory or Defeat at Olympic and Non-Olympic Events: Are Combat Actions Really Unpredictable? *International Journal of Performance Analysis in Sport* 2016; 16 (2), 442-463
21. Kirk C, Hurst H, Atkins S. Measuring the Workload of Mixed Martial Arts using Accelerometry, Time Motion Analysis and Lactate. *International Journal of Performance Analysis in Sport* 2015 15(1), 359-370
22. Adam M, Pujszo R, Kuźmicki S, Szymański M, Tabakov, S. MMA fighters' technical-tactical preparation – fight analysis. *Journal of Combat Sports & Martial Arts* 2015; 6(1), 35-41
23. Del Vecchio FB, Hirata SM, Franchini E. A review of time-motion analysis and combat development in mixed martial arts matches at regional level tournaments. *Perceptual and Motor Skills* 2011; 112, (2), 639-648
24. U.S. Department of the Army. FM 3-25.150, *Combatives*. Washington, DC: Headquarters Department of the Army, 2002
25. Danylchenko VA, Khabinets TA. Typical mistakes, made by the cadets, mastering the submission locks, of the higher educational establishments of the Ministry of Internal Affairs of Ukraine. *Physical education of students* 2014; 20– 25
26. Blanton, J. F. *Hand to hand combatives in the US army*. U.S. Army Command and General Staff College, Fort Leavenworth, KS, 2008

Address for correspondence:

Ronald Condé
Universidade Internacional (UNINTER)
e-mail: tjronaldconde@bol.com.br

Submitted: 15.05.2017

Accepted: 08.09.2017