

**ABSTRACT OF THE DOCTORAL THESIS
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Thesis submitted to: **NATIONAL UNIVERSITY OF PHYSICAL
EDUCATION AND SPORTS, Bucharest, Romania, 2011**

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**THESIS TITLE: CONTRIBUTIONS TO IMPROVE THE PREPARATION
OF WTF TAEKWONDO ATHLETES THROUGH
APPROPRIATE SELECTION OF EFFECTIVE ACTIONS
FROM PRESTIGIOUS COMPETITIONS**

Through this research we try to outline a new form of specific centralized training, based on reducing the number of technical actions studied (worked), which, scientifically, broaden the success rate.

We believe that the actuality of these theme is an approach that will improve the performance of athletes by producing maximum behavioral changes, with minimum time and material expenses. This theme represents an important scientific approach for the Romanian Taekwondo WTF Federation in perspective of forming the representative lot and increasing the prestige of Romanian sport.

From a scientific perspective this research aims to collect and process reliable and relevant information about the effective actions during competition. It tries to identify trends and harmonization requirements of the performance between national and international level.

From a methodological and applied perspective, our research tries to systematize and analyze the video analysis method, through logical and

mathematical prediction methods, in order to outline the most used actions to obtain the points and win games.

To realize these, we propose the following objectives:

- percentage systematization of technical actions that bring points
- systematization of technical actions that bring points by type of action: attack and counterattack, and type of attack (one technique or more)
- Total number of actions used during the course of three rounds (which reach the target but don't get points and technical actions executed off target);
- establishing taxonomies for penalty actions (outputs of the surface, intentionally touching the surface, holding, raising the knee, lack of combativeness and other prohibited actions);
- distribution in percentage of matches won at the golden point (on the attack, on the counterattack, through penalties, decision of the referees and type technical action);
- establishing the actual duration of combat and of the assault on each of the three rounds;
- characteristics needed to maximize training
- the developing of a training plan for national university team athletes

Therefore, the main objective that we propose is to select the most effective actions from this research to see whether the content of the training programs can be improved, in order to ensure a rapid succession and continuity of training. This thesis is structured into three parts.

Part I studies the the preparation stage of wtf taekwondo athletes by appropriate selection of effective actions: the gnosiological level of wtf taekwondo, theoretical and practical components of athletic training in general and applicable in taekwondo, preparedness planning in sports training - general and special aspects in taekwondo; aspects of imposed facilitative and restrictive rules of competition.

Part II of this thesis is represented by the pilot experiment. Pilot research aimed at verifying logistics and research instruments. The research represented a rehearsal of the actual research meaning a test of the sheet matches, reliability of extracted data and working procedures. In terms of the considered criteria, the

pilot research was carried out at smaller scale in order to verify the feasibility and improve the actual research design.

Part III of this thesis reflects personal contributions to improving the training of taekwondo athletes through effective actions selection from prestigious competitions.

The thesis concludes with a chapter that incorporates the final conclusions derived from both theoretical documentation and practical study and includes over 200 bibliographic titles.

The main theoretical conclusions that we can draw from this study are:

Worldwide, Taekwondo has shown an almost constant and continuous development, reaching at the third edition a number of athletes four times higher than at the first one, and double the number of participating countries. At the 1987 edition in Spain, was held for the first time the Women's World Championship. At the World Championship organized in Korea (2011) attended by 1040 athletes from 149 countries, compared with the first edition (Korea, 1973) to which attended 200 athletes from 19 countries.

As a university sports, worldwide, taekwondo showed an almost constant and continuous development. Thus, in 2010, at the World University Championship, held in Spain, attended twice as many countries than at the first World University Championship, organized in 1986.

From specialized literature data and the official records of some wtf federations we extracted several statistics, which shows that athletes with a high level of technical and tactical training and extensive experience tend to test their adversary which leads up to 86% of the time spent fighting.

Another key conclusion that can be drawn is that about 65% of the technical execution of mondollyo chagi, ends with KO when they reach the target; the technical actions focused to the upper body (momdollyo chagi 30%, dollyo chagi 19% and naeryo chagi 14%) are techniques that often misses the target, and those that focus on the middle part have a higher rate of success; single attacks are most often used and counterattack may be an opportunity to get points.

In both the male and the female athletes bandal chagi is the most commonly used technical action, which shows that this technique to be the fastest and with minimum execution risk.

Compared with the normal vests, where the gold point was evenly distributed between attack and counterattack victories, electronic vests tilt the scale towards counterattack wins. In 2009 the technical action bandal chagi became the almost single base action used in competitions with a rate of 91%, compared to 1993 where there were several technical actions were scored, including bandal chagi with a rate of 27%. In 2010, with the introduction of mandatory electronic vests there is a downward trend to 67% of bandal chagi technique and the emergence of other direct techniques in proportion of 21% (miro chagi, jireugi and dwi chagi), which the judges ignored, unable to determine the impact force.

It can also be concluded that the most common violations of the rules during a match are pushing, (agatarea) or holding the opponent, and a series of forbidden techniques.

The average age of the great performances in taekwondo, such as participation in the Olympics is for men around 26 years and for women 23 years. Thus, it was found that in both cases, the age of participants falls within the age limit is permissible for University Championships and World University Championships, namely 18 to 27 years.

The research was conducted on a sample of 263 athletes from 38 countries, aged between 18 and 28 years, students involved in a higher education, participating in The University Taekwondo Championship, held during 01-04 July 2010 in Vigo, Spain. The University World Championships, on which this research is conducted, is representative, because: 66% of the male participants are athletes with remarkable results. If added to this percentage we take into account and the number of athletes who participated for the first time and eliminated consecrated athletes, even occupying places on the podium, we arrive at a rate of 74%; in women, statistics show the percentage of 86% representing athletes with remarkable results and those who have eliminated consecrated athletes, finally occupying a place on the podium.

Data was recorded with the game sheet in August 2010 - March 2011 by video analyses of the games and of data from the World University Championship. We considered the most widely used technical actions, actual fighting time, type of attacks and actual number of miss attacks and of hits.

In both the male and the female categories, athletes who win are those who know how to manage the fight (avoiding, inconvenience) the opponent, reduce distance, etc...). A slight advantage goes to the defensive athletes because they act on stimulus given by the opponent, having all the strength, power, precision and speed driven on it.

Of time spent fighting during the three rounds of six minutes (2 minutes per round), after watching all the games we could conclude that the actual battle time is about 18% for males, representing an average of 21 seconds per round, the shortest fighting time registered was 5 seconds, and the longest was 37 seconds. The women have an effective fight time of 17%, representing approximately an average of 20 seconds per round, the shortest time for a round is 4 seconds, and the longest of 44 seconds.

It was found that in both male and female categories that the most common action is the assault of two seconds (one technical action followed by the other player with a counterattack). The three second attack is more rare.

In terms of attack, in both male and feminine categories, the one attack technique is most often used, and a combined attack of four techniques is very rare. Without a major highlight it is shown that in order to get points there is an inclination towards the attack the actions, because in this position, the athlete can better prepare the time of the attack (knowing that to obtain a point on the west he needs have a sufficient amount of force).

It notes that in both the male and the female categories half of the technical actions that score points is *bandal chagi*, which shows that this technique works both on the attack and also on the counterattack.

Technical actions focused on the superior level (*momdollyo chagi*, *dollyo chagi* and *naeryo chagi*) are techniques that most often miss the target, and those to the middle part have a higher rate of success.

As seen before, in male categories from all technical actions carried out by both combatants only 11% score, and almost the same percentage in female up to 10%. Most common mistakes throughout the competition, in hierarchical order are:

- leaving the battle area,
- touching the ground
- Holding the opponent
- Blows below the belt which are the most rare.

Based on data obtained by appropriate selection of effective actions, training programs have been developed and established in order to lead to an foreseeable outcome in the university lot subject to verification.

The positive effect on athletes training in the verification lot, strengthened by the remarkable results obtained is relevant as an indicator of the level of technical training ensuring a rapid succession and continuity in training. Training was done by the training plans developed as a result of selecting effective actions. In conclusion athletes performances make it possible to verify the means and methods used, thus demonstrating that the performance achieved is the best way of verifying the selected actions and their implementation in the training program.

We believe that the results of this research can be used as scientific arguments for making important decisions by the coaches and by the Federation, and it is for this reason that we plan to disseminate the results, especially in the form of proposal sets to the coaches national college of the Romanian Federation of Taekwondo WTF.