



## CONTRIBUTIONS REGARDING INCREASING EFFICIENCY OF ATTACK BY APPLYING REGIMES CONTRACTIONS ALTERNATED IN VOLLEYBALL

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### Abstract

*Aim.* The major role that it has the strength to practice volleyball performance modeling training requires taking into account the impact it has this motor skill in obtaining significant results in competitions. The players build and maintain a high level of performance, develop muscle groups in a homogeneous form without imbalances that disrupt subsequent training and sports performance. The aim of research is to make better use in preparing attack hit muscle contractions alternating regimens tailored to the tasks of the game.

*Methods.* As a working method I used:

- bibliographic documentation;
- interpretation of statistical and mathematical method;
- graphical representation method;

*Results.* From the graphical representation of the results, the efficiency of the whole team attack strikes, initial testing efficiency value was 26% and 31% final testing, so there is a 5% improvement. This result enables us to believe that muscle training programs by alternating regimens had a decisive role in increasing the efficiency of attack..

*Conclusions.* For this purpose we recommend the use of force in preparing classical methods, depending on the forms of labor they require volleyball and methods based regimens contraction in preparation alternate. I recommend this method to not cause monotony in preparation and foster conscious and active participation of athletes in training lessons.

*Key words:* efficiency, attack, volleyball, regimes contractions alternated

### Introduction

Volleyball game has a rich range of game actions, from the simplest to the most complex. This requires continuous training and diligent players and technicians in teaching a gradual phasing sequence of learning and development of the game, which contributes to giving a spectacular high notes.

Over time, mechanical and biological foundation of human movement was an important way that contributed to dividing this domain.

Depending on the spatial characteristics, analysts have built theoretical models, ie scientific plans for determining the optimal movement biomechanically.

The human body is a connected kinematic chain that drives the movement and motion of a segment to another segment repositioning.

Other authors (Mititelu, Serban, 2002) considers that the model theoretic analysis of the movement must start from the premise that the subject is an individual and situation is unique motion.

Following a permanent and continuous process of selection, training and preparation scientifically developed increasingly rigorous, today we are witnessing a growing skill levels, whether individual or collective players and teams in practice game something that causes changes in the

orientation of volleyball competition (Pacuraru, 1999, pag 68).

Efficiency attack remains high, both on account of combinative organization and by force of hitting the ball. Build Speed actions of attack is the result of exclusive flight speed of the ball on the fragment setter-spiker.

Detailed analysis of the construction teams attack value, indicate that (the need to overcome the defenses ever higher, aggressive and well organized) adoption variant combination with increasing distance from the completion net attack is the most effective policy option that ensures success and satisfaction spectacular game players (Niculescu, 2002, pag 23).

### Hypotheses

Given the crucial role of muscle training in the performance of volleyball players, we believe that the application of alternating regimes to develop specific force, will default to attack hit efficiency and enhancing the performance of the players.

### Methods

The scientific approach began with bibliographic documentation, which was studied prestigious sources that have provided reliable information and knowledge in biology, physiology, general psychology and sport, sports training theory and methodology, especially volleyball.

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The experiment used was type ascertaining - formative and case study, the method of research have highlighted differences between subjects. The ameliorative experiment - formative (case study) showed us the way to achieve:

Statistical and mathematical method

Data were ordered, tabulated and subjected to processing by calculating the usual indicators, such as: arithmetic mean, standard deviation, coefficient of variation.

Graphic representation method, which aims to illustrate how more suggestive of individual values and statistical characterization of the subjects is the histograms, where are the individual values of sample work.

To assess the effectiveness of the game, the game structure components, we considered necessary to provide for appropriate qualifications immediate effect that these actions have had on the play.

Granting of the scale of assessment was made using the FIVB developed and presented in "Statistical Manual for FIVB Match Record (SMR), 1992". The result of each action is evaluated using a scale of 5 degrees based on the effect on score or subsequent control of the ball the team that plays the ball or the opponent. \

The formula used to calculate the blocking efficiency was as follows:

$$E = \frac{[4 \times (A) + 3 \times (B) + 2 \times (C) + 1 \times (D) - 1 \times (F)]}{4 \times N}$$

Where:

- E = efficiency
- A = the number of executions evaluated 4
- B = the number of executions evaluated 3
- C = the number of executions evaluated 2
- D = the number of executions evaluated 1
- F = the number of executions evaluated 0
- N = the total number of executions

Models muscle training by alternating regimes

Sports training described and defined as a long-term adaptive process (Manno, 1996; Bompa, 2001;

Dragnea et al., 2002), for which leadership can not be achieved only on the basis of providing objective scientific assemblies, decisions and means.

The main objective was to achieve a high level of performance at a given time, usually the main competition of the year, by the change in fair shape sports. To obtain this level, had to correctly plan the entire program, so that skills development, quality motor skills and psychological traits follow a logical and sequential development.

The annual cycle in volleyball training is divided into four main periods: preparatory, pre-competitive, competitive and restoration of exercise capacity. Muscle preparation of the team was present subject experiment in all stages of preparation, but structured according to objectives. To achieve a high level of preparation, the new annual training plan began with a percentage of 50% effort and 70%.

In preparation volleyball players, as specific means using combinations of different regimens of contractions (isometric, plyometric, concentric, eccentric, etc.).

These combination may be:

Combinations of two regimens of contractions: isometric, concentric, isometric plyometric;

Combinations of three regimens of contractions: isometric, concentric, plyometric, eccentric-concentric-plyometric;

Combinations of four regimens of contractions: isometric, concentric, eccentric, plyometric.

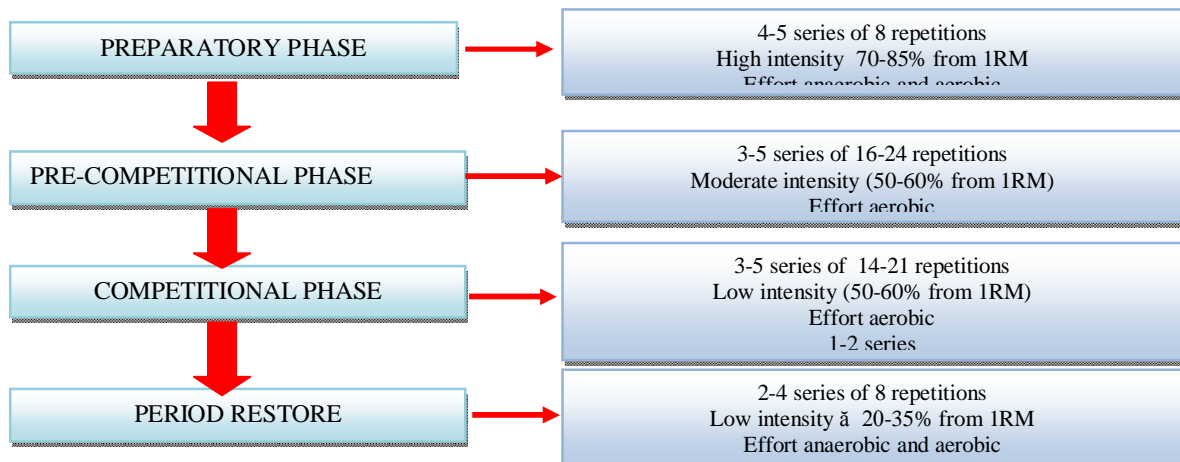
Modern planning methods and schemes is to alternate with continued contraction of a year taking into account their effects on preparing athletes.

The working principle, the alternate contraction schemes can be applied in two ways:

During the training, the binding of series with different shrinkage schemes;

During the training, performing repetitions with different regimes of contraction in the same series.

Table1 The periodization of muscle preparation



Muscle preparation performed using the proposed programs, applied throughout the macro cycle, being present in all stages of the preparation and having different goals depending on the time of preparation.

The racing period lasted about five months and the period of restoration of exercise capacity was the one who ended a training cycle and was intended to provide overcompensation for the next cycle.

These training period was divided into smaller structures (meso-cycles, micro-cycles) who had specific objectives derived from the general objectives of the annual plan.

The first step was performed initial testing gave us data on the number of successful attack hit both in training and during official matches, individually and on the whole team. Also in this stage expansion was measured throughout the test players.

In the second phase we have developed and implemented training programs for muscle contractions alternating regimens.

And in stage-III has been achieved final testing, evaluation and measurement attack hit detent players and recording progress in the application muscle training programs.

Graphic 1. Number of hours of muscle during training

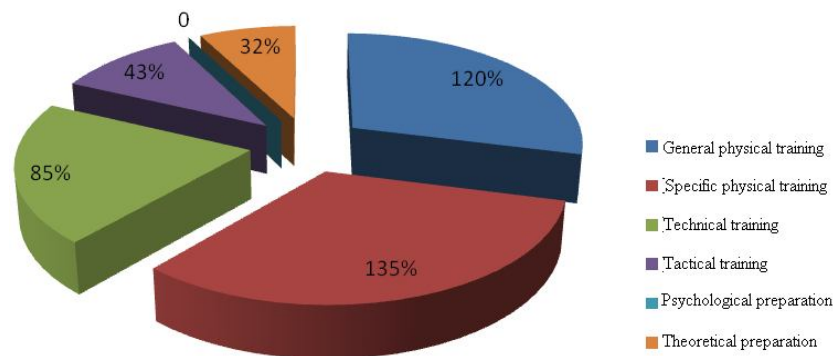


Table 2. Theoretical model for muscle training

	Muscle mass	Explozive force	Rezistence
<b>Loading %</b>	70% - 80%	90% - 100%	60% - 70%
<b>Time (sec.)</b>	15'' - 50''	5'' - 10''	90'' - 100''
<b>Number of repetitions</b>	6-20	1-5	40-50
<b>Series</b>	3-5	3-6	2-5
<b>Pause (min.)</b>	2' - 3'	4'-5'	1' -2'
<b>Frequency</b>	5-6	3 - 4	10-14
<b>Speed (% from maximum)</b>	80% - 90%	90% - 100%	70% - 80%



**Results.**

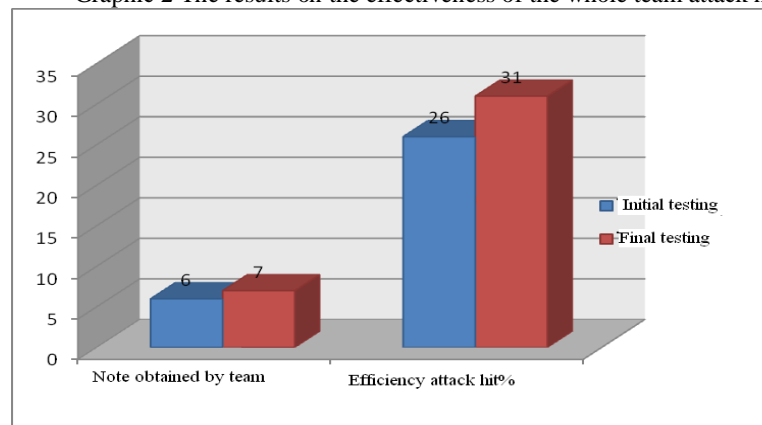
Table 3 Initial testing using Data Volley 2007

Player detail   Attack		Ind.	*E%	Tot	=	%	/	%	-	%	+	%	#	%
<b>Team</b>	Attack	6	26%	396	42	11%	40	10%	94	24%	46	12%	174	44%
<b>C. P</b>		6	19%	68	9	13%	8	12%	19	28%	2	3%	30	44%
<b>A. M</b>		7	38%	34	6	18%		0%	6	18%	3	9%	19	56%
<b>C. A</b>		8	54%	13	2	15%		0%	1	8%	1	8%	9	69%
<b>H. N</b>		6	24%	83	9	11%	11	13%	15	18%	8	10%	40	48%
<b>D. S</b>		6	22%	41	4	10%	4	10%	11	27%	5	12%	17	41%
<b>R. Șt.</b>		7	48%	33		0%	4	12%	6	18%	3	9%	20	61%
<b>C. L</b>		6	19%	36	2	6%	4	11%	10	28%	7	19%	13	36%
<b>P. B</b>		6	16%	18	3	17%	4	22%	5	28%	3	17%	3	17%
<b>T.L</b>		6	25%	40	4	10%	3	8%	13	33%	8	20%	12	30%
<b>V. A</b>		7	32%	30	3	10%	2	7%	8	27%	6	20%	11	37%

Table 4 Final testing using Data Volley 2007

Arcada Galati   Player detail   Attack		Ind.	*E%	Tot	=	%	/	%	-	%	+	%	#	%
<b>Team</b>	Attack	7	31%	415	28	7%	34	8%	84	20%	64	15%	205	49%
<b>C. P</b>		7	24%	69	7	10%	8	12%	17	25%	6	9%	31	45%
<b>A. M</b>		8	40%	39	4	10%	1	3%	5	13%	5	13%	24	62%
<b>C. A</b>		8	58%	22	2	9%	2	9%	1	5%	3	14%	14	64%
<b>H. N</b>		7	29%	76	6	8%	9	12%	12	16%	10	13%	39	51%
<b>D. S</b>		7	25%	40	2	5%	3	8%	9	23%	6	15%	20	50%
<b>R. Șt.</b>		8	52%	39	1	3%	2	5%	5	13%	5	13%	26	67%
<b>C. L</b>		7	27%	38	1	3%	2	5%	8	21%	8	21%	19	50%
<b>P. B</b>		7	20%	20	2	10%	3	15%	6	30%	4	20%	5	25%
<b>T.L</b>		7	30%	39	2	5%	3	8%	10	26%	11	28%	13	33%
<b>V. A</b>		8	37%	33	1	3%	1	3%	11	33%	6	18%	14	42%

Graphic 2 The results on the effectiveness of the whole team attack hit





## Discutions

The major role that it has the strength to practice volleyball performance modeling training requires taking into account the impact it has this motor skill in obtaining significant results in competitions (Bril Kleshev, 1988, pag 138).

The players build and maintain a high level of performance, develop muscle groups in a homogeneous form without imbalances that disrupt subsequent training and sports performance.

Proper development of the organism in terms of functional adaptation to exercise that is performed by general physical training exercises with emphasis on multilateral resistance. In the physical training will aim to improve motor skills in their general form of expression and processing muscle groups and chains involved in the most difficult technical executions that follow to be strengthened or improved.

Under these conditions the ratio of effort parameters is characterized by a high volume, intensity and complexity is somewhat lower. A good general physical training provides optimum support for improving specific physical preparation and generally show good preparation for later.

In muscle training volleyball players must use various means and methods according to the period of training, volleyball game features, individual characteristics of players, game station, older athletes to achieve effective training to obtain good results competitions (Niculescu, 2001).

For this purpose we recommend the use of force in preparing classical methods, depending on the forms of labor they require volleyball and methods based regimens contraction in preparation alternate. Este recommend this method to not cause monotony in preparation and foster conscious and active participation of athletes in training lessons.

## Conclusions

From the graphical representation of the results, the efficiency of the whole team attack strikes, initial testing efficiency value was 26% and 31% final testing, so there is a 5% improvement. This result enables us to believe that muscle training programs by alternating regimens had a decisive role in increasing the efficiency of attack.

The results obtained for the two tests, there is an erroneous decrease in the number of executions of

40 to 34 for testing the "attacks blocked" and from 42 to 28 when tested "wrong Attacks"

According to the results we conclude that the hypothesis was confirmed, namely "applying alternating regimes to develop specific force, will default to attack hit efficiency and enhancing the performance of the players"

Of the 10 players subject study, four have not improved in the expansion or "jump attack" and no testing "Jump to jam" but all values were higher in efficiency attack hit managed to increase execution note by decreasing the number of mistakes.

The initial testing in the "jump to attack" the average value was 328.40 m and the final test average was 341.40 m, yielding a 13% improvement between the two tests on the whole team.

The "Jump to block" value initial testing was 328.40m and 329.10m final testing which proves, in the case of this sample, an improvement in indices detent.

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