

2. Altıncuk, Y. & Yılmaz, K. (2016). Öğretmenlerin mizah tarzları ile örgütsel sinizm düzeyleri arasındaki ilişki. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi*; (32): pp.122-143.
3. Cemaoglu, N, Receptoglu, E., Şahin F., Daşçı, E. & Köktürk, Os. (2012). Mizah davranışları ölçeğinin geliştirilmesi: geçerlik ve güvenilirlik çalışması. *Türk Eğitim Bilimleri Dergisi*, 10(4), pp.694-716.
4. Cengiz, R., Kayhan, M. & Acet, M. (2016). Beden eğitimi öğretmenlerinin mizah tarzları ile algılanan duygusal bezdirme üzerine araştırma. *International Journal of Science Culture and Sport (IntJSCS)*, 4:(S12), pp.490-501.
5. Çimen, B. (2011). *Devlet ve özel okullarda görev yapan sınıf öğretmenlerinin mizah kullanma yeterlilikleri konusundaki algılarının incelenmesi*. Akdeniz Üniversitesi, Sosyal Bilimler Enstitüsü, Eğitim Bilimler Anabilim Dalı, Yüksek Lisans Tezi, Antalya, p.5.
6. İlhan, T. (2005). *Öznel iyi oluşa dayalı mizah tarzları modeli*. Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Yüksek Lisans Tezi, Ankara, p.11.
7. Karasar, N. (2012). *Bilimsel Araştırma Yöntemi*. Nobel Yayın Dağıtım, 21.Baskı, Ankara, s.79.
8. Martin, RA., Puhlik-Doris, P., Larsen, G., Gray, JJ. & Weir, K. (2003). Individual differences of uses of humor and their relation to psychological well-being: development of the humor styles questionnaire. *Journal of Research in Personality*, 37 (1), pp.48-75.
9. Martin, RA., Puhlik-Doris, P., Larsen, G., Grey, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: development of the humor styles questionnaire. *Journal of Research in Personality*, 37(1), pp.48-75.
10. Özdolap, M. (2015). *Mizah tarzları ve psikolojik belirtiler arasındaki ilişkinin incelenmesi*. İstanbul Bilim Üniversitesi Sosyal Bilimler Enstitüsü, Psikoloji Anabilim Dalı, Uygulamalı Psikoloji Yüksek Lisans Programı, Yüksek Lisans Tezi, İstanbul, p.53.
11. Sayar, B. (2012). *Üniversite öğrencilerinin mizah tarzları ile umutsuzluk ve boyun eğici davranışları arasındaki ilişkinin incelenmesi*. Sakarya Üniversitesi, Eğitim Bilimleri Enstitüsü, Eğitim Bilimleri Anabilim Dalı, Eğitimde Psikolojik Hizmetler Bilim Dalı, Yüksek Lisans Tezi, Sakarya, p.11.
12. Stieger, S., Formann, AK. & Burger, C. (2011). Humor styles and their relationship to explicit and implicit self-esteem. *Personality and Individual Differences*, 50 (5), pp.747-750. Doi:10.1016/j.paid.2010.11.025.
13. Thorson, J. A. & Powell, F. C. (1993). Development and validation of a multidimensional sense of humor scale. *Journal of Clinical Psychology*, 49 (1), pp.13-23.
14. Yerlikaya, E. E. (2003). *Mizah Tarzları Ölçeği'nin (The Humor Styles Questionnaire) Uyarlama Çalışması*. Yüksek Lisans Tezi. Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana, p.37.

The Strength Development of 16-17-Year-Old Rugby Players through Weight Training Exercises in Annual Training Cycle

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Abstract

This article reflects the experimental argumentation of the effectiveness of applying the experimental program for the development of muscle strength to 16-17-year-old rugby players in an annual training cycle. Starting from the hypothesis that the use of weight training exercises for strength development, systematized depending on the training stage of 16-17-year-old rugby players, will directly influence the full potential of their muscular force. The experimental program was developed and proposed to the experimental group, which reflects: objectives specific to the training meso-cycle, connection ratio between effort and rest, dosing the means of force development in a training lesson, while the control group followed the traditional training in gym. In both groups were selected and analysed the tested indices for determining the maximum force at the beginning and the end of the pedagogical experiment, the data being mathematically and statistically processed and presented in tabular form. Analysing the final results, we can see that the hypothesis advanced at the beginning of the research has been confirmed, which has allowed to raise the maximum potential of the muscular force through the use of weight training exercises for the development of force, systematized depending on the stage of preparation of the 16-17 years old rugby players in the training process.

Keywords: experimental program, strength development, 16-17-year-old rugby players

Introduction: Sports training is the main means of training athletes in order to participate in competitions and to achieve the planned performances. Sports junior training is a process of training and educating the athletes in order to participate in sports competitions with a high degree of efficiency and training them for high performance. [1].

The training of rugby players focuses on one or other of the sport training components (motor, technical and tactical, psychological) using new methodologies to increase the game efficiency in competitive activity [2].

According to A. Dragnea and S. Mate-Teodorescu [1], the concept of game and training is defined as a system of methodical and scientific knowledge, continuously formed and improved by information and own experience of each coach, which is applied in the practical activity in order to achieve the objectives.

The rugby game has known and experienced substantial changes in the direction of improving the game, especially in the last decade, once with the passage to professionalism. This phenomenon entails the optimization of the training strategies of the rugby player in order to adapt to the new requirements of the game, but also to the needs of developing the rugby movement [3, 4].

The main objective of the training always remains to increase the players' adaptability limits to high efforts with the purpose of achieving maximum efficiency with effort economy and fatigue resistance [1, 5, 6].

By the nature of the specific demands, rugby game causes morpho-functional changes at the osteoarticular and muscular level, as well as in the systems associated with the locomotor apparatus. The specifics of the rugby game directly of fighting with the opponent in the contest for balloon, of supporting the balloon bearer "in force", requires a special care in training the young rugby players for their arming with stamina and muscle strength.

From the above mentioned, the **research hypothesis** has been formulated, according to which the use of weight exercises for strength development, structured depending on the stage of training the 16-17-year-old rugby players in the sports training, will directly influence the full potential of their muscular force.

Methodology and organization of research

The aim of research is the development of muscle strength of 16-17-year-old rugby players, by applying the experimental program that emphasizes the varied use of weight exercises depending on the training period.

Objectives of research: analysis and synthesis of the specialized literature regarding the problem of preparing junior rugby players; application of the experimental program for developing the strength of 16-17-year-old rugby players; experimental argumentation of the effectiveness of applying the experimental program to develop the muscular strength of the 16-17-year-old rugby players in an annual training cycle.

In order to achieve the proposed objectives, a complex of research methods, closely linked, permanently or temporarily, were applied throughout the research: analysis of the scientific-methodical literature, pedagogical observation, pedagogical experiment, testing method, statistical and mathematical methods, graphical and tabular method.

Organization of research the research was conducted in three stages:

Stage I expected the following activities: analysis of the specialized literature sources, carried out throughout the research; pedagogical observation, the maximal force testing of the groups included in the experiment before the basic experiment;

Stage II of the research was the organization of the basic experiment, where the two groups included in the experiment participated (SSSRAR - Blumarine - experimental group (n = 22), and UTM Chisinau - the control group (n = 18). The experimental program carried out by us was implemented in the experimental group, while the control group followed the traditional training.

Stage III of the research was final testing and indices processing (5 tests of experiment group and 5 tests of the control group) after finishing the basic experiment in the two groups included in the experiment.

The annual training plan [6, 7] was made in line with the existing competition timetable at the time of carrying out the basic pedagogical experiment. The means used to increase the sporting skill of junior rugby players have been developed and distributed within the micro-cycle as follows: during training sessions on Mondays and Fridays - for individual technical and tactical training; on Tuesdays and Thursdays of each week - developing motor skills; on Wednesdays and Saturdays - the development of force.

In the pedagogical experiment, they were selected and subjected to the practical testing of maximum force at the 16-17-year-old junior team, training in the "Blumarine" rugby club, taking into account all the groups of muscles that are in permanent interdependence in the established sequences, conditioning the practice of the global rugby game.

Following the initial testing, a model of training in the gym was proposed based on the presented conditions, while respecting the players age characteristics and their level of training (Table 1).

Table 1. The training program for strength development of 16-17-year-old rugby players

I- ACCOMODATION MESO-CYCLE	II-BASIC MESO-CYCLE	III- PRECOMPETITIVE MESO-CYCLE	IV-COMPETITIVE MESO-CYCLE
Meso-cycle objectives:			
Increasing the athlete motor potential. Development of rapid movements	Increasing the athlete working ability. Resistance training and the ability of conducting O2 in muscles	Development of maximum strength Exercises with effort for increasing muscular mass in force aerobic regimen	Strengthening the segmented joints and muscles Strength development in speed regimen
Working regimen: 4 – weeks: 3- working - 1- free training circuit 2 - workouts/ week: a. – strength development of upper body b. – development of lower and back body			
20-30% of maximum force - 4 sets - 20 repetitions - 2 min. rest	50-60% of maximum force - 4 sets - 12-15 repetitions - 3-4min. rest	80-90% of maximum force - 4 -6sets - 4-6 repetitions - 6 min. rest	20-30% of maximum force in execution speed - 2 - 3 sets - 15 – repetitions - 4 min. rest

Following the application of the experimental program in practice, a great interest showed the evolution of the tested parameters of the 16-17-year-old rugby players in the pedagogical experiment. The evolution of maximum force indicators, tested from the beginning till the end of experiment, is shown in Table 2.

As a result of our analysis on strength potential indicators, we can make the following assessments:

- in the *decline bench press* test, the performance recorded in the experimental group, significantly improved between the initial and final results ($P < 0.001$), while in the control group were recorded more modest increases ($P < 0.05$);
- statistically significant were the differences of results also of the shoulders muscular force, represented in the sample *flat bench press*, which the athletes of the experimental group also were more convincing, achieving significant increases at the final testing at the 0.1% ($P < 0.001$) threshold but the control group showed insignificant increases ($P > 0.05$).
- the indices on the *back muscles strength* also have been improved both in the experimental and in the control group, in the chest and neck press tests, the athletes of the experimental group showed increases of results in the significance threshold of 0.1% ($P < 0.001$), and the difference between the initial and the final testing in the samples reflecting the strength of the back muscles in the control group are insignificant ($P > 0.05$).
- In the last sample (lying leg raise) there was an accentuated increase in the experimental group ($P < 0.001$), whereas in the control group the increases are at the 5% threshold ($P < 0.05$).

Table 2. Dynamics of force indices of 16-17-year-old rugby players after mathematical and statistical processing (n = 40)

No. of crt.	Control standards	Groups	RESULTS OF RESEARCH			
			TI ± m	TF ± m	t	P
1	Decline bench press (kg)	E	81.25±3.63	94.07±2.75	3.92	< 0.001
		M	87.4±3.56	96.25±2.77	2.93	< 0.01
			t = 1.18 P>0.05	t = 1.41 P>0.05		
2	Flat bench press (kg)	E	29.46±2.23	40.25±1.94	5.18	< 0.001

		M	34.35±1.86	36.75±1.76	1.26	> 0.05
			t = 1.69 P>0.05	t = 2.69 P<0.05		
3	Chest press (kg)	E	61.45±1.95	69.25±1.38	3.81	< 0.001
		M	58.24±1.88	63.45±1.71	2.11	> 0.05
			t = 1.11 P>0.05	t = 2,13 P<0,05		
4	Neck press (kg)	E	60.64±1.62	71.86±1.47	6.62	< 0.001
		M	61.94±1.81	66.34±1.74	2.09	> 0.05
			t = 0.57 P>0.05	t = 2.16 P<0.05		
5	Lying leg raise (kg)	E	130±6.71	152,43±5,19	3.66	< 0.001
		M	119±5.83	137±5,22	2.56	< 0.05
			t = 1.94 P>0.05	t = 2.92 P<0.05		

Note: E – EXPERIMENTAL GROUP SSSRAR-Blumarine)

M – CONTROL GROUP (UTM)

n-22, f – 21, P – 0.05; 0,01; 0.001.

t₁ – 2.080; 2.831; 3.819

n- 40, f – 38. t – 2.025; 2.713; 3.571

n-18, f – 17, P – 0.05; 0.01; 0.001

t₂ – 2.110; 2.898; 3.965

Conclusions:

- according to the five tested indicators, the experimental group recorded significant increases in all samples, compared to the control group, with significant increases in 2 indicators;

- the great progress achieved by the experimental group during final tests is due to the mechanism effect of the positive transfer of the means applied from the experimental program (with effective dosing) in the pedagogical experiment on the development of muscle strength, which in its turn led to improve the way of the athletes' performance and during the game.

At the same time, we propose some practical and methodical recommendations:

- It is recommended that the main focus in the use of means to develop muscle strength to be put on all the training periods of the annual sports training.
- The means of development of the force will be selected according to the training level of the athlete with a strict dosage of physical effort for each athlete in part.
- The exercises for increasing the force potential at the beginning of the training will be performed with light weights and once with their acquiring the weights will increase.
- It is necessary to apply various weight training exercises in the training process, but with heavy weights to enhance the safety of their performance.
- The exercises with weights combined with competition elements can be applied, as well as means for performing / imitating the individual game technique.

References:

- [1] Dragnea A., Mate-Teodorescu S. (2002). *Teoria sportului*, București, FEST, p.100-250.
- [2] Constantin V. (2004). *Rugbi, tehnica și tactica*, București, FEST, 350 p.
- [3] Сорокин А. (1984). Регби. М., ФиС, с. - 5.
- [4] Тльзин А.М. (1978). Во истину мужская. М., ФиС, с. – 7.
- [5] Alexe N. și colaboratorii (1993). *Antrenamentul sportiv modern*, București, EDITIS, 531p.
- [6] Bragarenco N. (2017). *Rugby, dezvoltarea capacităților coordinative*. Monografie. Chișinău, Valinex, 120 p.
- [7] Bragarenco N., Gorașenco A. (2014). *Programarea antrenamentului sportiv pentru dezvoltarea capacităților coordinative ale rugbiștilor de 16 – 17 ani*. Materialele conferinței științifice internaționale consacrate zilei mondiale a calității, Chișinău, USEFS, 14- 15 noiembrie 2014, p.108 – 115.