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3rd Central & Eastern European LUMEN International Conference  
New Approaches in Social and Humanistic Sciences | NASHS 2017 |  
Chisinau, Republic of Moldova | June 8-10, 2017

# New Approaches in Social and Humanistic Sciences

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<https://doi.org/10.18662/lumproc.nashs2017.46>

How to cite: Toma, Urichianu, S. (2018). Methodological Orientation in Rowing by Introducing Complementary Training. In V. Manolachi, C.M. Rus, S. Rusnac (eds.), *New Approaches in Social and Humanistic Sciences* (pp. 529-536). Iasi, Romania: LUMEN Proceedings.  
<https://doi.org/10.18662/lumproc.nashs2017.46>

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# Methodological Orientation in Rowing by Introducing Complementary Training

Sanda TOMA URICHIANU<sup>1\*</sup>

## Abstract

*The methodology of training in sports performance practice no longer corresponds to the required training and competition performance of the athlete. There appears, therefore, the need to use concepts and new information obtained from the Methodists and specialists in sports training, to produce an efficient methodology, as an addition on the way to performance. Romanian rower athletes have recently achieved less efficient results, which show that the training methodology no longer corresponds to the sporting world and to modern requirements. We thought that introducing the methodology of preparing complementary ergometer exercise will provide an opportunity to help improve and promote a higher performance in rowing. To contribute to improved methodology of training in rowing we studied 8 rowers of 18-20 age groups at Snagov Sports Club. We applied a workout program for 6 weeks preparatory phase, in which we introduced 500 m speed tests and 2000 m tests, where we use the ergometer Concept II type PM5, which aims to provide the necessary information, instantly motion control and continue reorganization. In conclusion, the data in this study show that the introduction of specific training methodology in cross-training can help improve and promote a higher performance in rowing.*

**Keywords:** Ergo meter, rower, methodology, specific training, athletic performance.

## 1. Introduction

After Cîrstea G., the training effort requires being aware of meeting the demands of physical training, of a higher technical and tactical level achievements, as well as focusing on mental and intellectual aspects, willingly

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<https://doi.org/10.18662/lumproc.nashs2017.46>

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leading to changes in both capacity, biological and physiological adjustment to performance, as well [2].

Athletic effort represents the biological stimulus that, through its volume, intensity and complexity forces the body to react intensively and generalized at the muscular, cardiovascular, respiratory, endocrine-metabolic, and nervous level. Sports requiring a high-energy mixed-energy effort, such as rowing, develop both applicative and detail-oriented skills and moral qualities such as: learn to build stamina and be action-oriented to become a leader [3] to develop balance, agility and coordination [1].

The increase of sport performances relies on several factors such as the need for top quality athletes both from somatic and functional perspectives [8]. If the means used in sports training are adequate, then the results from the competition echo the deployed effort.

Performance sports specialists encourage and support the development of strategies for the development of specific methodology to each sport [6].

For practicing performance rowing, athletes will need to have anthropometric parameters that meet particular stature and weigh requirements, as well as good sports training and effective competitive behavior [4].

Inappropriate age-related physical effort can negatively influence the growth process and therefore the state of health during the sportive life is a decisive factor. In order to reduce the occurrence of traumas and pathological elements that may result in the abandoning sport performance, there appears the need of preventive and corrective action.

In order to predict, as accurately as possible, the percentage evolution of morphological model parameters at the end of the growth period, the selector should have some growth and development characteristics specific to this stage [9]. As a result of the long physical effort, the body needs a period of rehabilitation, to rest, to strengthen its health and restore its strength to resume work [7]. Starting from these considerations, in this paper we undertook a complex study, processing the results from the water control events and the rowing simulator by correlating them in order to design the performance model for athletes as a requirement of the competition team selection.

We can mention that the vast majority of theoreticians and practitioners apply a wide range of methods and means in the ergo rowing training, but at present there is no well-established scientific strategy for applying the specific learning means within the most important training cycles, such as the basic and precompetitive mid-cycle. Thus, cross-training

of ergo rowing and resistance running within pre competition period upgrade the functional and performance indicators in rowing.

## 2. Problem Statement

The ergo rowing trainings represent the most modern means and methods for training rowers. These can be done in such a way to help tracking the functional capabilities of athletes, so that at the end of the training stages they can find the shortest way to the high performance.

In order to achieve the set goals, the coach starts from the idea of unity between the training process and a series of variables (age, sex, climate, equipment). According to Demeter A. (1974), the growth of the human organism is based on genetic endowment, the future performer's status being genetically conditioned

The biological performance model has an anthropometric model that represents the factors of the optimal process of growth and development of the individual, necessary to achieve some outstanding results [10].

The same authors propose an interactive model. The biological performance model consists of the anthropometric model that represents the factors of the optimal process of growth and development of the individual, necessary to achieve some outstanding results. In rowing, methodologists recommend a selection process focused on specific requirements [11].

## 3. Research Questions/Aims of the research

**The aim of our research** is to identify modern complementary methods and means of ergo rowing learning to speed advancing to the great performance, in order to improve the performance of the athletes in competitions.

**The objectives of this study** are to: identify the methodology of learning through ergo rowing training, to determine the optimal level of the morphological development necessary for the rowing learning, to identify and promote highly efficient and effective cross-training methods to avoid the early rower run-down.

**Research hypothesis.** It has been assumed that applying an effective methodology for completing ergo rowing training and ultra-racing will help improve and promote higher performance in rowing.

## 4. Research Methods

The following research methods were used in the study: the observation of morphological and functional indicators, the teaching experiment, the method of testing water and ergo rowing performance measurement and the statistics and graphical representation.

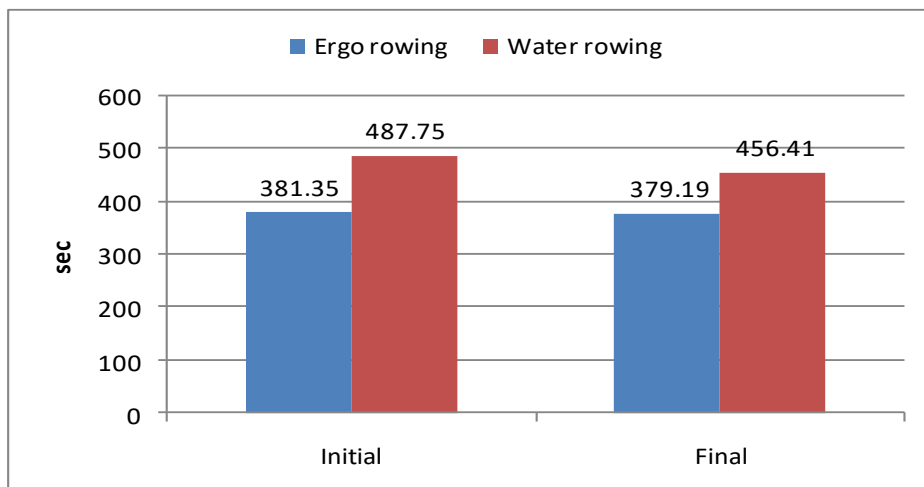
The study was conducted from February to April 2016 at the Snagov Sports Club on a group of eight athletes aged 18 to 20. For this study, we had 8 ergo rowing, 8 training boats (1x) as well as the facility of carrying out this study chosen and required program.

For both improving the functional capacity and increasing competition performance indicators, we added cross-trainings of ergo rowing and 15 min. resistance running at 18-20 age group rowers pre competition training stage.

We mention that these athletes are in permanent training with optimal cantonment conditions for meeting performance objectives and did 10 training sessions per week for 2 hours during that period.

## 5. Findings

Figure 1 and Table 1 below show the results of tests on 18-20-year-old water rowing and ergo rowing, regarding ergo and water rowing initial and final testing.



**Fig.1.** Results obtained at the ergo rowing and the 2000 m water rowing event of the 18-20 years old

**Table 1.** Results obtained at the ergo rowing and the 2000 m water rowing event

No.	Ergo rowing (sec)		Water rowing event (sec)	
	Initial	Final	Initial	Final
1	362.5	362.8	482.1	452.5
2	372.3	371.3	478.9	446.6
3	373.6	372.4	507.2	464.2
4	388.0	377.7	483.9	454.4
5	390.5	393.5	485.2	457.2
6	394.4	392.9	494.5	460.6
7	394.7	393.4	481.0	462.6
8	374.8	369.5	489.2	453.2
x	381.35	379.19	487.75	456.41
SD	12.05	12.35	9.28	5.89
Cv%	3.16	3.26	1.90	1.29
t; P	1.53; >0.05		12.53; <0.001	

Note: t- test, Comparative test on pairs

To do the comparative analysis of the obtained performances of 18-20 age group rowers at the initial and final testing, we needed to converse ergo and water rowing outcomes from minutes to seconds. We highlighted individual results of rowers and compared them to average statistics indicators.

Table 2 presents the results of the correlation between tests and events of the performances obtained on ergo rowing and the 2000 m water control event of the 18-20 years old rowers.

**Table 2.** The results of the correlation between the ergo rowing performance and the water rowing control event at the 2000 m event

r		Initial	Final	
		Ergo rowing	Water rowing	Ergo rowing
Initial	Ergo rowing	0.077	0.946	0.512
	Water rowing			
Final	Ergo rowing			0,548
	Water rowing			

Note: r- Correlation coefficient to Persons.

We applied Persons' linear correlation method at 18-20 age group rowers, to highlight the existence of significant correlations between ergo and water rowing at initial and final testing.

## 6. Discussions

The need to use modern training methods shows compliance with the objectives and characteristics of the effort parameters within different stages of training and lies at the basis for achieving world-class performance [5].

The results of the comparative analysis highlight at the 2000 m ergo rowing event that the initial test shows an average of 381.35 sec and an improvement of 2.16 sec and insignificant differences between tests at  $p > 0.05$ . Looking at the 2000 m water rowing event results, at initial testing they show an average of 487.75 sec and an improvement of 31.34 sec and significant differences between tests at  $p < 0.001$  (table 1, fig. 1).

The correlation results highlight strong links on the ergo rowing between tests (table 2), of  $r = 0.946$ ; moderate links ( $r = 0.512$ ), between the ergo rowing test at initial testing and the water rowing control event at final testing, at the water rowing control event between tests ( $r = 0.648$ ) and between the ergo rowing event and the water rowing test at the final test ( $r = 0.548$ ).

There are also weak links between the ergo rowing event and the water rowing event at initial testing and between the water rowing event at the initial test and the ergo rowing event at the final test. We can confirm that the use of the ergo rowing, by the 18-20 years old rowers, as cross-training in the period before competition, significantly influenced the performance of the final test.

## 7. Conclusions

The study argues convincingly that the use of complementary means in training is appropriate and easy to apply at any stage of training athletes.

Thus, the final test on both the simulator and the water was superior to initial testing.

The correlation has highlighted strong ties to the simulation test between tests, and the use of the simulator in 18-20 year gears has significantly influenced the performance of the final test.

The present research confirmed the hypothesis that using the ergo rowing and resistance running cross-training during the pre-competitive period of the 18-20 age group contributed to the improvement of the performance on the 2000 m water rowing event.

## 8. Acknowledgement

I declare on my own responsibility that the subjects in this research were informed of their voluntary participation, they understood the information received and the possibility to withdraw from the research at any time without any negative consequences on them. Research complies with the ethical standards, and the research participants gave their consent to participate in this project.

Our research is courtesy of rowers, of their coach, Mrs. Tudorache Carmen, from Snagov Sports Club, courtesy of Romanian Rowing Federation coaches; especially of prof. Alupei Dorin whose support contributed mostly to our work.

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