

ABSTRACT OF THE DOCTORAL THESIS BY MR. CRISTIAN-MIHAI MALIS

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Thesis Title: **CONTRIBUTIONS TO THE STUDY OF THE RELATIONSHIP BETWEEN THE COMPETITION PERFORMANCE AND THE ERGO METER RESULTS IN MALE ROWING**

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Keywords: Ergometer, competition performance, rowing

The thesis is structured into three parts: the stage of knowledge regarding the sport training and the competition performance in rowing, the pilot experiment and the contributions to the study of the relationship between the competition performance and the ergo meter results in male rowing.

The research has a determinative and interpretative type and contains an experiment of scientific argumentation referring to the diagnosis and prognosis of the performance during competitions based on the results from the ergo meter.

The choice of the theme is justified within the common introduction through the major interest towards finding and enriching the knowledge concerning the new dimension of the specific training created by the rowing simulators with their ever more performing equipment. The same interest is shown towards the introduction of modern training techniques using new means such as the types "concept 2" and "pm3". The actuality of this theme resides in the fact that simulated rowing ensures the continuity of training along the whole cycle, irrespective of the meteorological or climatic variations.

The goal of the research is to offer ideas and scientifically structured information concerning the ergo meter training effects upon the rowing athletes' performance during competitions, in order to valorize them in the training of the male rowing teams.

We consider hypothetical the fact that between the ergo meter result and the result at the proximate competition there is a significant and positive correlation, amended by the time interval between the recordings, the rowing athlete's individual behaviour in his boat (single or crew), the emotive condition or other psychic factors, the quality of the materials etc.

Conclusions referring to the theoretical part of the research

The competition performance in rowing is given by the produce of the effects determined by the concentric action of a multitude of factors such as: the value of the biological material, the sport training exercise, the material investment in order to ensure the sports collective training camps according to the newest scientific concepts regarding the training sessions and the recuperation period through a performing management. The factors which may be considered important or relevant for the sport performance are numerous, several hundreds. These may be classified as it follows: physical, biological, methodological, organizational, conjunctional or random ones.

Their characteristic of facilitating or restricting the competition performance depends upon:

- ❖ their magnitude or amplitude;
- ❖ their duration and period of influence;
- ❖ their association;
- ❖ their succession;
- ❖ their compensation.

Conclusions referring to the experimental part of the research

The practical application achieved in this research entitles us to state that, in a great measure, the working hypothesis confirms itself. Thus, we may identify between the results at the ergo meter expressed through some basic parameters and the results in the proximate competitions a significant correlation, which allows an acceptable prediction amended by the time interval between the recordings, the individual behaviour and the technique of the rowing athlete in his boat (single or crew), the emotive condition or other psychic factors, the quality of the materials etc. (we illustrate this conclusion by the enclosed graphic, where the percentages of the evolution on the ergo meter are marked upon the abscissa and those of the evolution on water in the single boat are marked upon the ordinate).

Another practical result of our research is the fact that the individual rate of progress of the two components in the rowing training is significantly correlated and in certain situations the information provided may be redundant.

Also, as in the previous conclusion, when the level of performance on the ergo meter is high as a general average of the group, the performance level on water of the same group is also

high. It also indirectly results the fact that the evolution of subjects on ergo meter during the winter-spring training is better than during the summer training session; this shows that rowing on water does not transfer the physical resistance accumulation effects as well as the rowing upon the ergo meter.

The summary of the personal contributions and the claims of intellectual property

Referring to the actual level of knowledge concerning the sport training in the Olympic rowing we may appreciate that the advanced technology and the vanguard information are the exclusive property of certain countries that have progressed spectacularly in the world top hierarchy recently.

Following the experiment achieved for the first time in the world (according to our opinion) we may identify the degree of correlation between the competition performance and the results on ergo meter, so that an acceptable power of prediction should be ensured.

We think that the manner to make the sport training more efficient including the ergo meter testing and its use as a training auxiliary may be claimed as intellectual property, emphasizing upon the effort dosage and its iteration, the control and balance of the psychic instances during effort, and ultimately for the selection and the harmonization of the crews.

The ergo meter performance may be predictive for the result in the proximate competition only in the case of the high level performance. However, the technical and tactical indicators of valorization of training in competitions should be at their optimal level.

Proposals

We consider that the interpretative and determinative aspects of this research may be really useful to the Romanian Rowing Federation.

The conclusions of this research may also be used in the lectures of the students attending the field of Sports and Physical Education and as a support in the formation of the graduates as future coaches or trainers.

We intend to publish a book having its content inspired from this thesis.

Nowadays we are on the verge of implementing the main findings of this research upon a team of cadets in order to practically validate its conclusions.