

УНИВЕРЗИТЕТ „ГОЦЕ ДЕЛЧЕВ“ – ШТИП
ФАКУЛТЕТ ЗА ОБРАЗОВНИ НАУКИ
UNIVERSITY “GOCE DELCEV” SH TIP
FACULTY OF EDUCATIONAL SCIENCES



**ОБРАЗОВАНИЕТО ВО XXI ВЕК
– СОСТОЈБИ И ПЕРСПЕКТИВИ –**

**МЕЃУНАРОДНА
НАУЧНА КОНФЕРЕНЦИЈА
– ЗБОРНИК НА ТРУДОВИ –**

**EDUCATION IN XXI CENTURY
– CONDITIONS AND PERSPECTIVES –**

**INTERNATIONAL SCIENTIFIC
CONFERENCE
– PROCEEDING BOOK –**

Штип, 24 – 25 Септември, 2015
Shtip, September, 24-25, 2015

fesconference@ugd.edu.mk

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LADIES AND GENTLEMEN, DEAR GUESTS!

With great honor and pleasure I welcome You on behalf of all teachers, associates, employees and students of the Faculty of Educational Sciences at the University "Gotse Delchev" in Shtip and I wish You pleasant moments during this solemn event organized to mark 20 years of university education of teachers.

But in fact, the Faculty of Educational Sciences basis its twenty years of existence on 146 year continuous development of formal education of teachers and preschool teachers in the region. The achievements of the Pedagogical-Seminary school founded in 1869, the existence of which is linked to the name of the creator of the first primer and the first textbook for teachers - School Pedagogy - Josif Kovachev, and to the name of the great teacher Gotse Delchev, followed by the School for Teachers established in 1946, Higher Pedagogical School founded in 1959, and the Pedagogical Academy (1961) are woven into the tradition and development of our Faculty.



In 1995 the two-year formal education of teachers and preschool teachers developed into four-year university studies.

In 2007 the Pedagogical Faculty became part of the State University "Goce Delchev" in Shtip, said to be the fastest growing university in Macedonia.

Following the global trends in teacher education, modern trends in education policymaking in Europe and in the world, respecting the knowledge of the history of civilizations as an important intellectual resource for social development, as well as scientifically and experientially diagnosed educational challenges that have emerged as a result of deep changes of values in our society and globalization trends (scientific, educational, technological, and economic) the Faculty of Educational Sciences has designed study programs for I, II and III cycle of studies in accordance with the organizational - pedagogical quality standards in compliance with the principles of the Bologna Declaration and European credit-transfer system with a high level of recognition in the area of European Higher Education.

If 20 years ago our Faculty started to implement teaching with 5 PhDs and 3 masters as regular employees, today we can proudly say that our academic community is comprised of 20 PhDs and one master.

Today our students have the opportunity to educate themselves at the faculty which sees its future as a continuous development aimed at:

- Strengthening and expanding international partnerships
- Popularization of mobility of students and staff,
- Internationalization and improvement of scientific research work,
- Improvement of pedagogical approaches to teaching and links with practice, putting students at the center of the educational process.

Ladies and Gentlemen,

I take this opportunity to thank you for coming today to celebrate with us the teaching profession and our contribution to it.

We are quite aware that the road to success is long and winding and it is easier to travel with joint forces. That is why we wanted to mark this celebration by organizing a scientific conference dedicated to education in the 21st century. Let us share our knowledge, understanding and experiences regarding the situation and perspectives and suggest possible ways of modernization. 89 papers have been submitted and there are authors from 8 countries. This is really promising!

Once again, I wish you all a warm welcome and successful work.

Dean,
Prof. d-r Sonja Petrovska
24. 09. 2015., Stip

ПОЧИТУВАНИ ...

Со голема чест и задоволство, Ве поздравам во името на сите наставници, соработници, вработени и студенти на Факултетот за образовни науки при Универзитетот Гоце Делчев во Штип и Ви посакувам пријатни моменти во текот на оваа свечена манифестација организирана по повод 20 годишно факултетско образование на наставници и воспитувачи.

Факултетот за образовни науки своето постоење го темели на 146 годишниот континуиран развој на формалното образование на наставници и воспитувачи на овие простори. Во традицијата и развојот на нашиот факултет се вткаени достигнувањата на Педагошко-богословското училиште основано во 1869 год. Со чие постоење се врзува името на творецот на првиот буквар и првиот учебник за наставници – Школска педагогија – Јосиф Ковачев, и името на големиот учител Гоце Делчев, па Учителската школа основана во 1946 год, Вишата педагошка школа формирана во 1959 год, Педагошката академија (1961 год.).

Во 1995 година формалното двегодишно образование на наставници и воспитувачи прераснува во четиригодишно факултетско образование.

Во 2007 година Педагошкиот факултет стана дел на државниот Универзитет „Гоце Делчев“ во Штип, кој го носи епитетот најбрзорастечки Универзитет во Р Македонија.

Следејќи ги глобалните тенденции во образованието на наставници, современите тенденции во креирањето на образовните политики во Европа и во Светот, респектирајќи ги знаењата за историјата на цивилизациите како значаен интелектуален ресурс за општествениот развој, како и научно и искусствено дијагностицираните воспитни предизвици кои се појавија како резултат на длабоките вредносни промени во нашето општество и глобализациските тенденции (научни, образовни, техничко-технолошки, економски) ФОН дизајнираше студиски програми за I, II и III циклус на студии согласно организациско –

педагошки стандарди за квалитет, согласно принципите на Болоњската декларација и Европскиот кредит-трансфер систем, со високо ниво на препознатливост во Европскиот високообразовен простор.

Ако пред 20 години нашиот факултет започна да ја реализира наставата и вежбите со 5 доктори на науки и 3 магистри, како редовно вработени, денес со гордост можеме да кажеме дека оваа академска заедница ја сочинуваат 20 доктори на науки и 1 магистер.

Денес нашите студенти имаат можност да се образуваат на факултет кој својата иднина ја гледа како континуиран развој во насока на:

- зајакнување и проширување на меѓународните партнерства,
- омасовување на мобилноста на студентите и на вработените,
- интернационализација и подобрување на научно-истражувачката работа,
- унапредување на педагошките пристапи во наставата и врските со практиката, поставувајќи ги студентите во центарот на образовниот процес.

Почитувани присутни,

Ја користам оваа прилика, да ви се заблагодарам што дојдовте денес заеднички да го чествуваме учителското дело и нашиот придонес во него.

Ние сме сосема свесни дека патот до успехот е долг и кривулест но и дека полесно се патува со заеднички сили. Затоа ова наше празнување сакавме да го одбележиме со Научна конференција посветена на образованието во 21 век, да ги споделиме нашите знаења, разбирања и искуства во врска со состојбите и перспективите како и да предложиме можни начини за негово осовременување.

Уште еднаш, На сите Ви посакувам топло добредојде и успешна работа!

Декан,

Проф. д-р Соња Петровска

24. 09. 2015. година Штип

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TRAINING EFFICIENCY OF CYCLISTS SPECIALIZED IN ROAD CYCLING

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Abstract

The aim of the study is to increase the efficiency of the education and training processes management of elite cyclists. One of the approaches to do this is the improvement of phenotype factor influence which includes improvement of training process efficiency. For effective correction of the educational and training processes, a systematic control of cyclists' special training is necessary. This will contribute to the increase of sport result levels.

Keywords: *training process, control, physical abilities, testing.*

Introduction

Riding a bicycle is a typical cyclic movement. Movement and balance management is achieved through coordinated movements of arms, legs and body [3]. Cycling is activity in which the athlete seeks to overcome the distance regulated by the rules of the race with the maximum possible speed. Cycling as a sport features the attention of spectators, athletes and professional because of its attractiveness. [4]

For achieving high performance results in sport, athletes and their coaches must overcome the increasing rivalry on all levels. Progress in cycling today is impossible without creative understanding of the best performance by athletes and the further development of scientific and methodological provision of training process management for elite cyclists.

One of the main ways to improve sport performance is to perfect phenotype factor including improvement in training process efficiency. In turn, this means that training process must become a manageable process with the help of science and technical progress of cycling. For effective training process corrections is needed systematic control of cyclists' special preparation. This will contribute for increase of sport result levels. This fact prompted us to perform the following study.

Methodology

The aim of the following study is to increase management efficiency of elite cyclists training process. For the purposes of the study, we used the following methods: theoretical analysis, summarizing the methodological literature, pedagogical observation and pedagogical experiment (using control tests, mathematical and statistical methods).

The study was organized and conducted in three phases. The first stage included research of 30 cyclists, the second phase included research of 22 cyclists and the third included 10 cyclists. There was no control group in our study. In this respect, the experiment was not comparative in nature, but analytic presenting group differences and assessing results for the respective group for the period of the experiment.

The first stage duration was from February to October 2012. We studied the state of scientific and methodological literature (tests determining the training level of cyclists were developed), testing methods were utilized, pedagogical test were conducted, questionnaires and data analysis of training diaries and long-term training plans of cyclists were analyzed, physical training indexes were examined and selected.

The second stage included the period from November 2012 to September 2013. In this period, we defined the indexes trends and dynamics presenting the level of physical preparation of cyclists. We also revealed the specificity of tests at different stages of annual training cycle.

The third stage within the annual training cycle from November 2013 to October 2014 held the pedagogical experiment in which, based on the results corrections of the training process evaluating the effectiveness of the methodology for control of physical training were made.

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Results analysis

As a result, from the data processing and results analysis we found that elite cyclists preparing for competition season use four main variants for competition preparation, differing from one another both in duration, training volume, intensity and basic training means:

1. Continuous competitive micro cycle in which each day the cyclists pass new stage (several days cycling).
2. Micro cycle with two competitions in one week. For one week, the cyclists overcome 700 km in total, of which around 380 km in moderate intensity and 320 km in recovery mode.
3. Micro cycle with three competition in one week with one-day rest between competitions. They can combine in two competitions per day. Here we find significant differences for allocation of pre and after competition training loads compared to previous variant.
4. Pre-competition cycle. At the end cyclists participate in the most important competitions for the season. Several options can be used:
 - The first four days include training loads from all parameters except competitions. However, unlike an ordinary situation in these days moderate and low intensity trainings predominate. For example, for four days training period includes moderate and recovery training loads around 325 km, at the same period the volume of strength and high intensity loads is only 250 km. The fifth day is a rest day. Different cyclists have various approaches spending this day: one (8,7%) prefer passive rest, others (65,3%) use it for active holiday, thirds (26%) use the first half of the day for pacer cycling riding around 40-60 km. On the sixth day before the start during the first half of the day competitors ride around 55-70 km. On the seventh day after warm up with 30-35 km, they start in competitions.
 - The structure and content of the second variant is similar to the first, but training volume and intensity during the first four days of the pre-competition training cycle decrease with 35-40%.

The pedagogical control of athletes readiness is one of the basic elements used for control of educational and training processes which take place in all stages of the annual training cycle. The analysis based on the cyclists training documents shows that basic in preparation (training) is the final control (92,9%) which determine the amount of the training process for the annual training period.

As a proof for road cyclists training control, we conducted research on tests used for diagnosis of special physical training level of elite cyclists. In the educational and training process, cyclists were included in opposite way of the experimental tests evaluations and with the completion of the annual training cycle used test were confirmed.

Tests reliability was based on correlation levels determined by preliminary analysis of variables: 1/ variables of individual cyclists; 2/ variables of cyclists on same training level; 3/ variables of cyclists from different stages of training cycle. The main criterion for research validity indexes was their true correlation with the aggregate result of preparedness.

Most tests were found to be with high level of reliability (from $r=0,907$ to $r=0,988$, $p<0,05$), and basically good informativity – from $r=0,668$ to $r=0,926$, $p<0,05$. For example, this explains the equal preparedness level of cyclists and the panel of used tests (well known by cyclists). Thus, we found that the most reliable and informative in determining the level of physical abilities development are six test (see Table 1). Dynamics of indexes presenting the level of physical preparedness of cyclists through different stages of the annual training cycle. To determine the timing of applied tests for complex control were used results dynamics of different abilities during the annual training cycle – they are changing passing through 3-5 phases.

In order to analyze structure changes of preparedness in different stages of annual training cycle we used results factor analysis based on cyclists data. Factor analysis helped control and verification of relationships between preparedness and basic tests. It also helped dividing factors in the annual training cycle. During different stages were determined differences in training process structure.

Table 1: Tests

physical abilities	tests
Speed	15 seconds acceleration (revolution 39x17)
Explosive strength: speed component	15 seconds acceleration (revolution 53x17)
Explosive strength: power component	15 seconds acceleration (revolution 53x15)
Special endurance to aerobic-anaerobic type of physical load	5 minutes physical load (revolution 53x15)
Endurance to aerobic type of physical load	15 minutes physical load with 100 revolutions/minute, (revolution 53x15)
Maximal strength	Total isometric muscular increase of the lower limbs (kg)

Thus, during the first stages significant impact on the training structure of cyclists has: special physical training (33,1%), strength training (25,5%), functional training (23,1%), endurance and aerobic training loads (12,1%), lower limbs explosive strength (4,5%). During the pre-competition period training structure includes the following factors: lower limbs explosive strength (33,4%), endurance (27,7%), speed preparedness training (14,9%), special endurance (14,0%), functional training (6,1%), strength training (3,0%). Training structure of elite cyclists differs greatly during main stages of competition (during active sport season). The following factors have influence during competition periods: speed – strength preparedness (34,3%), strength endurance (25,3%), functional training preparedness (23,2%), speed training (10,4%), strength training (3,9%), aerobic endurance (2,5%). As a base for test selection we used the study of solvable tasks and factors structure of cyclists during different stages of annual training cycle were used as a base for test selection.

Experimental study of methods for control. Analysis of solvable stage tasks was conducted. In addition, most important tests revealing the level of physical preparedness during different stages of the annual training cycle were selected. The dynamics of performance level characteristics of riding skills allowed us to develop a method for complex control of special training level of cyclists for annual training cycle stages. (see Table 2)

Table 2

Control test	Stages								
	ES	BS	CPS	PCS	ECS	TCS	ITS	MCS	CS
15 seconds acceleration (rev 39x17)	X		X			X			
15 seconds acceleration (rev 53x17)	X			X		X			
15 seconds acceleration (rev 53x15)	X			X		X			
5 minutes training load (rev 53x15)	X			X		X		X	
15 minutes training load with 100 rev/min. (rev 53x15)	X			X		X		X	
Total isometric muscular increase of the lower limbs (kg)	X			X		X		X	

entry stage (ES), base stage (BS), control-preparation stage (CPS), pre-competition stage (PCS), early competition stage (ECS), team competition stage (TCS), immediate training stage (ITS), main competition stage (MCS), competition stage (CS)

With the report of these problems and justification of developed complex methods for control of cyclists preparedness during the annual training cycle was evaluated the efficiency of the pedagogical experiment.

We conducted the pedagogical experiment to justify the developed models of complex control as basis to training and competition loads control.

Thus, the effectiveness of educational and training processes requires systematic monitoring of cyclists special training, which will contribute to the increase of sport level results and sport longevity.

Cyclists training process becomes more and more exact as a science. Fortunately this science "body and soul" does not diminish the joy and satisfaction of sport training sessions in cycling as the training process gets deeper and more complete sense.

Conclusions

In the system for managing training process for cyclists are missing accessible to every coach tests – specific to different types of specific training. This fact reduces motivation of coaches to conduct systematic control of cyclists preparedness.

We found that most reliable and informative, revealing the level of preparedness are the following tests and methods for evaluation of the physical condition (five tests): three 15 seconds accelerations, 5 minutes training load, 15 minutes training load at 100 revolutions per minute.

We found differences in the motor abilities of cyclists bodies during different stages of the annual training cycle. Proper evaluation of the physical preparedness parameters will allow coaches to make on time adjustments in the training process taking in mind individual characteristics and predicting sport results.

Applied method of control would significantly increase the efficiency of both educational and training processes and will improve the special training of cyclists.

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