

## **TESTING OF CYCLISTS AGES 13 OR 14 FOR THE TRIAL CYCLING DISCIPLINE**

*Preliminary communication*

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### **Abstract**

*The aim of this study is to test young and promising cyclists for the trial discipline, aged 13 to 14 years old. A system is proposed for the selection of cyclists in the trial cycling discipline at the age of 13 to 14 years. This study is the first of its kind in Bulgaria, and it is a precondition for the promotion of the development of the trial cycling discipline. With aim to test the abilities of young and promising cyclists for the trial discipline, we realized a research on a sample of 14 cyclists aged 13 to 14 years. They were tested in 11 variables, two anthropometric and nine motoric tests. Two sets of tests were conducted in a period of 12 months. Obtained results suggest toward a positive changes that occurs with the improvement of the physical development (general and specific) of the participants. On the basis of the sigmal method, a reference values were developed for selection of cyclists for the trial cycling discipline at 13 to 14 years of age. The obtained results may be used in other countries in our region due to similarities in the morphological and functional development of adolescents at that specific age.*

**Keywords:** *trial cycling, cyclists' selection*

### **INTRODUCTION**

The achievement of high results in cycling requires good knowledge of the anatomical, physiological and functional characteristics of adolescents' bodies and development. This will optimize the choice of the best methods of training and will ensure maximum realization of the different options Kolev & Iliev (Колев & Илиев) (2014.). Trial cycling is a discipline in which cyclists go through considerable and excruciatingly hard obstacles with a series of jumps and turns that require almost superhuman balance and concentration. These obstacles are both natural – large rocks and trunks, or artificial – barrels, tractor tyres, pallets, etc. The cyclist starts from the ground and in an upright position, standing on the pedals, begins to climb things that even a walking person may find impossible to climb. Although it is hugely interesting to watch, this is the least popular cycling discipline, mostly because it is very difficult and takes a lot of years to get good at.

The control tests and measurements at the initial stage of sports training are an excellent way to discover talented athletes for a certain sports discipline. This is precisely what made us to conduct this study Kolev & Iliev (Колев & Илиев) (2014.). The aim of this study is to test young and promising cyclists for the trial discipline, aged 13 to 14 years.

### **METHODS**

The subjects of this study are 14 cyclists aged 13 to 14 years. Two sets of tests were conducted in a period of 12 months. The control tests were performed between the sets of tests (once every 3 months) to check the training and preparedness of the athletes participating in the study.

The subject matter of this study is the motor capacity of boy cyclists aged 13 to 14 years. For the needs of the study we identified 11 tests illustrating the anthropometric and motor characteristics of the subjects (Table 1.). The tests allow for evaluation of the level of development of the basic physical skills required for successful performance in cycling – speed, strength, endurance, flexibility. These are easy to measure and control, which is the reason why they can be applied directly in the practice by experts and coaches.

We could categorize them in the following way:

1. Anthropometric data – X1, X2.
2. Special speed skills – X3, X4.
3. Lower limb speed – X5, X6.
4. Speed and power skills of lower limbs – X7, X8.
5. Flexibility – X9.
6. Isometric strength of upper limbs – X10, X11.

The anthropometric indicators 'height' and 'weight' (X1, X2) are tests with ascertaining orientation. They give direct information about the development of the

Table 1. Tests for selection of trial cyclists included in the study

| No. | Index | Description                               | Measuring unit | Accuracy |
|-----|-------|---|----------------|----------|
| 1.  | X1    | Height                                    | cm             | 1        |
| 2.  | X2    | Weight                                    | kg             | 1        |
| 3.  | X3    | 100 m rolling start                       | sec            | 0.01     |
| 4.  | X4    | 200 m rolling start                       | sec            | 0.01     |
| 5.  | X5    | Running 30 m 4-point stance with a signal | sec            | 0.01     |
| 6.  | X6    | Running 30 m rolling start with a signal  | sec            | 0.01     |
| 7.  | X7    | Long jump                                 | m              | 0.01     |
| 8.  | X8    | Vertical jump                             | cm             | 1        |
| 9.  | X9    | Flexibility                               | cm             | 1        |
| 10. | X10   | Dynamometry right hand                    | kg             | 1        |
| 11. | X11   | Dynamometry left hand                     | kg             | 1        |

Table 2. Reference values for selection of trial cyclists aged 13 to 14 years

| Grade Test                              | 6          | 5         | 4          | 3          | 2          | 1         |
|---|------------|-----------|------------|------------|------------|-----------|
| Height                                  | Over 165   | 162-164,9 | 158-161,9  | 154-157,9  | 150-153,9  | Under 150 |
| 100 m rolling start                     | Under 6,8  | 6,81-7,0  | 7,01-7,2   | 7,21-7,40  | 7,41-7,7   | Over 7,7  |
| 200 m rolling start                     | Under 12,5 | 12,5-13,0 | 13,01-13,5 | 13,51-14,0 | 14,01-14,5 | Over 14,5 |
| 30 m 4-point stance with a signal (sec) | Under 4,8  | 4,81-4,95 | 4,96-5,02  | 5,03-5,10  | 5,11-5,20  | Over 5,2  |
| 30 m rolling start with a signal (sec)  | Under 3,9  | 3,91-4,0  | 4,01-4,1   | 4,11-4,2   | 4,21-4,3   | Over 4,3  |
| Standing long jump (m)                  | Over 2,30  | 2,20-2,29 | 2,12-2,19  | 2,05-2,11  | 2,0-2,04   | Under 2,0 |
| Vertical jump (cm)                      | Over 40    | 37-39,9   | 34-36,9    | 31-33,9    | 29-30,09   | Under 29  |
| Flexibility (cm)                        | Over 9     | 8-9,8,9   | 7-7,9      | 6-6,9      | 5-5,9      | Under 5   |
| Dynamometry right hand (kg)             | Over 40    | 37-39,9   | 34-36,9    | 32-33,9    | 30-31,9    | Under 30  |
| Dynamometry left hand (kg)              | Over 35    | 33-34,9   | 30-32,9    | 28-29,9    | 26-27,9    | Under 26  |

young human body and about the preconditions for acquisition of sports techniques and the further physical development of the particular subject.

The special speed skills of cyclists (100 and 200 m rolling start - X3, X4) are the general expression of the level of development of one of the most important qualities of cyclists – their speed. Here we can easily find the capacity with which each of the subjects was born, because this quality is to a great extent genetically pre-conditioned. That is why tests with similar orientation should be a priority for any researcher.

Lower limb speed (30 m 4-point stance with a signal and 30 m rolling start - X5, X6) complete the picture drawn by the previous two tests. Here we have the opportunity to discover talent in terms of reaction speed of young cyclists, and the speed at which their muscles flex and relax within a full motion cycle, a running step in this case.

The speed and power skills of the lower limbs (long jump and vertical jump - X7, X8) are another important element of athletic talent, illustrating the combination of speed and power, which is essential in cycling.

Flexibility (X9) is a quality without which any sports movement, be it one that relies fully on physical power and strength, would be successful. It is an expression of the ability of the athlete to do a physical exercise with great amplitude, loosely, with optimal effect of the

muscle flexing – within a certain rhythm and direction. It's neglecting in early childhood always leads to significant repercussions in any sports discipline. In cycling, where we have mostly cyclical and highly repetitive movements, it is of uttermost significance, along with power and the speed.

The isometric strength of the upper limbs (dynamometry of right and left hand - X10, X11) reflects the ability of cyclists to establish an effortless contact with the bike. On the other hand, it is an expression of the natural development and growth of their bodies over the period of time covered by the study.

## RESULTS

We are obviously looking at an effective training process in the one-year period of the experiment, a reflection of which are the positive changes occurring with the improvement of the physical development (general and specific) of the participants. These interrelations allow us to conclude that the battery of tests was competently selected and meets the objective of the study.

On the basis of the signal method we developed a reference values for selection of cyclists for the trial cycling discipline at 13 to 14 years of age (Table 2.). The degree of talent is assessed in 6 grades: outstandingly talented (Grade 6); very talented (Grades 5); talented (Grade 4); moderately talented (Grade 3); satisfactorily

talented (Grade 2); poorly talented (Grade 1).

The proposed approach may be applied in other sports too, both individual and team sports. The subjects are carriers of both the individual and the national age-related characteristics in the development of the respective qualities.

## CONCLUSION

The above reference tables are instrumental in the updating and optimization of the training process for the determination and evaluation of the physical preparedness of cyclists aged 13 to 14 years.

The opportunity is given for selection of cyclists for the trial cycling discipline at the age of 13 to 14 years. It is recommendable that the table of reference values to be applied on 14-year-old boys, as it was developed on the basis of the final data obtained at the end of the one-year experiment.

All in all, the trends in the age-related development and the physical and sports development of the athletes may provide guidelines in the preparation of cyclists at the specified age in any region.

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