

## DEVELOPMENT OF MOTIVE SKILLS OF STUDENTS WHILE MAKING UNDERARM PASS DURING PLAYING VOLLEYBALL

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**Annotation.** *Purpose:* The effect of the experimental procedure on the development of motor abilities of students in the course of employment volleyball. *Material:* The experiment involved 80 students of the Faculty of Physical Education. *Results:* Studies have shown that when passing the ball with two hands at the bottom of the students there is a certain dynamic changes in the structure of support interactions, which is expressed by the increase of biodynamic and time indicators on 8.19% of the students in the control group and 16.17% of the students in the experimental group. The technique allowed tenzodynamometry qualitatively assess the level of development of motor abilities of students in performing the ball with two hands at the bottom. Determine the validity of the growth of average indicators support reactions of the body of students in the experimental group when the transfer of the ball with two hands at the bottom. *Conclusions:* Recommended every lesson during warmup volleyball include special exercises, tasks are executed sequentially, with a gradual increase in load as the assimilation of motor actions, use the methods of biomechanical control.

**Keywords:** students, biomechanical, tenzodynamometry, volleyball, physical education.

### Introduction

Training of motion skills is required in any activity. However, only in sphere of physical education this training is a core of all training process, as far as in this sphere motion functioning is both the object and the mean and the purpose of perfection. In physical education training is rather specific. The sense specificity is that main scope of new is learnt in mastering of different motion actions, i.e. physical exercises [6, 8, 9].

All movements are formed during life of a person under influence of different factors and the process of their formation can have different character. Optimization of this process is achieved in conditions of rationally built training. Inner logic of educational process and improvement of motion actions in such conditions is usually interpreted as consequent transition from knowledge and ideas to ability to fulfill it and then – from skill to reflex. Possibility to master rational movements depends on correct knowledge about sense, rules and conditions of their fulfillment; transformation of knowledge in actions can be possible only on the base of its practical realization [2, 4].

Mastering of a movement starts from formation of its visual-logic picture. As main methods oral description, showing and their combination – demonstration-comment - are used. The next task of training – formation of motion ideas about elements, required for movement. The main method of solution of this task is practical fulfillment of action, which is learnt in parts or as a whole [5].

At initial stage of movements' training the most typical mistakes are: extra movements by amplitude and direction; wrong rhythm; low speed of movement [1, 5, 11].

Mastering of movements requires many repetitions that causes significant losses of physical, psychic and mental energy. Quantity of movements' repetitions is determined by dynamic of their mastering and by dynamic of remembering. Rest intervals are determined by peculiarities of dynamic of physical and psychic workability and by regularities of mastering of the material [6].

Ability to control own movements and fulfill them adequately to own demands is formed only in process of special training with the help of specially selected physical exercises. With it, it is necessary to consider that in volleyball the most important is ability to evaluate own movements in respect to time and space and by increasing of muscular tension [3, 5, 10].

In this connection we researched influence of experimental methodic on development of students' motion skills in process of volleyball trainings.

The topic of this work complies with scientific program of faculty of physical education of Chernigov National pedagogic university, named after T.G. Shevchenko and is a part of university's topic "Pedagogic ways of healthy life style's formation of different age schoolchildren" \*state registration number 0112U001072 dt. January18, 2012).

### Purpose, tasks of the work, material and methods

*The purpose of the work* is to theoretically ground and experimentally test effectiveness of methodic of motion skills' development of students in volleyball training.

*The tasks of the research:*

Receive data, which permit to develop and control motion skills in process of volleyball training.

- Work out methodic of development of students' motion skills with ball's passing by two hands from below.

*The methods of the research:* theoretical analysis and generalization of literature sources, pedagogic experiment, strain gauge dynamometry, methods of mathematical statistics.

*Organization of the research:* experimental researches were conducted on the base of Chernigov National pedagogic university, named after T.G. Shevchenko, in laboratory of bio-mechanics with participation of 1<sup>st</sup> and 2<sup>nd</sup> year students of faculty of physical education (n=80).

### Results of the research

Training of elements of volleyball technique is the basis of game, as far as no tactic idea can be realized without perfect mastering of techniques. The more various technical fitness of players is the more tactical possibilities exist for a team [3, 7].

Passing of ball is a targeted action, which is connected with taking of ball and re-directing of it to one of partners. Taking of ball (for example taking of ball from adversary's service) does not reflect actual position because in this case main aim is targeted pass to attacking player. Term "taking" is connected with time, when many players could not handle served ball correctly.

Success of ball pass's training depends on level of players' physical fitness. They shall be able to stand on half bent legs for long time, to quickly move on site.

We worked out special methodic of development of students' motion skills in process of volleyball trainings with ball's passing by two hands from below, which included 30 special exercises with certain tasks. The tasks were realized consequently, with gradual increasing of loads in the course of mastering of movements. At every training during warming up we fulfilled special volleyball exercises and used method of repetition. General group (GG) of physical education faculty students was divided into control group (CG) (n=40), which was trained by traditional methodic and experimental group (n=40), which was trained by special methodic.

Control over development of motion skills was conducted with the help of bio-mechanical methods, videlicet: method of strain gauge dynamometry that permitted to promptly correct training and perfection process.

Influence of methodic of motion skills' development on bio-mechanical indicators of support responses when fulfilling ball's passing with two hands from below by control group's students was characterized by positive increment of changes ( $P<0.05$ ), videlicet: the highest percentage increment belonged to indicators of maximal force of pushing in respect to sagittal axis – 7.35 %, gradient of force– 9.66 % and impulse of force– 13.33 % (see table 1).

Table 1

*Mean statistic indicators of support responses of body of physical education faculty students when fulfilling ball's passing with two hands from below*

| №  | Description of characteristics | GG (n=80)    | CG (n=40)    | Increment, % | EG (n=40)    | Increment, % |
|----|--------------------------------|--------------|--------------|--------------|--------------|--------------|
| 1  | $F_z \max$                     | 1614.5±397.5 | 1645.8±53.12 | 1.94         | 1678.6±41.16 | 3.97         |
| 2  | $F_x \max$                     | 56.15±8.29   | 58.97±9.91   | 5.02         | 93.51 ±19.88 | 66.54        |
| 3  | $F_y \max$                     | 57.54±20.12  | 61.23±19.87  | 7.35         | 66.14 ±22.13 | 14.95        |
| 4  | $F_{\max}$                     | 1615.1±398.1 | 1643.2±53.31 | 1,74         | 1881.2±54.78 | 16.48        |
| 5  | $F_{\max}/P$                   | 2.31±0.42    | 2.26±0.09    | -2.16        | 2.33±0.21    | 0.87         |
| 6  | GRAD                           | 3384.1±947.4 | 3711.1±239.1 | 9.66         | 4359.7±166.5 | 28.66        |
| 7  | I                              | 99.39±23.35  | 112.64±15.31 | 13.33        | 139.12±25.22 | 39.94        |
| 8  | P                              | 693.67±50.22 | 727.15±8.23  | 5.01         | 739.12±25.23 | 6.57         |
| 9  | $T_{ps}$                       | 0.22±0.04    | 0.21±0.03    | -4.55        | 0.18±0.05    | -18.18       |
| 10 | $T_{\max}$                     | 0.33±0.09    | 0.32±0.04    | -3.03        | 0.31±0.02    | -6.06        |
| 11 | $T_o$                          | 0.12±0.04    | 0.08 ±0.09   | -33.33       | 0.11±0.02    | -8.33        |
| 12 | $T_{\max}+T_o$                 | 0.45±0.13    | 0.42±0.03    | -6.66        | 0.43±0.01    | -4.44        |
| 13 | $T_h$                          | 0.51±0.18    | 0.39±0.03    | -23.53       | 0.46±0.11    | -9.81        |

|    |                  |           |            |       |            |        |
|----|------------------|-----------|------------|-------|------------|--------|
| 14 | H <sub>max</sub> | 0.16±0.06 | 0.15 ±0.03 | -6.25 | 0.12 ±0.05 | -18.75 |
| 15 | T <sub>sum</sub> | 1.07±0.15 | 1.03±0.02  | -3.74 | 1.04±0.15  | -2.81  |

Indicators of maximal force of pushing in respect to vertical and frontal axes had lower increment – 1.94 % and 5.02 % respectively, of maximal value of support response' components– 1.74 %, of body mass– 5.01 %. Indicator of correlation of support responses force indicators' maximal value to body mass reduced by 2.16 % (P>0.05). As a result of experiment mean increment of bio-dynamic indicators in control group was 10.85 %.

Time characteristics of support responses with ball's passing by two hands from below reduced values from 3.03 % to 33.33 %. Mean increment of time indicators of control group was 8.19 %.

In experimental group we found great quantity of confident changes of our methodic influence on bio-mechanical characteristics of ball's passing with two hands from below. All bio-mechanical characteristics changed confidently (P<0.05). Increasing of changes was in mean range from 0.87 % to 66.54 %. Time characteristics changed confidently (P<0.05). Increment of percentage of their values was within from 2.81 % to 18.18 %. Mean increment of experimental group's indicators was 16.17 % (see table 1).

Therefore approximate schema of training and development of motion skills implies understanding of sense of a technique, imagining of movements' structure during practical actions with ball, finding of the most rational solution and fixing of skills with multiple repetitions.

#### Conclusions:

On the base of obtained by us results we can affirm that the offered experimental methodic is effective for development of students' motion skills in process of volleyball trainings. Application of the offered methodic in combination with bio-mechanical methods of control in process of volleyball training permits to achieve better indicators of support responses of body that is witnessed by increment of percentage of mean statistic indicators of support responses on experimental group in comparison with control one by 7.98 %.

*The prospects of further researches in this direction* imply offering of new ways of motion skills' development on the base of experimental data in the process of volleyball trainings in sphere of HEEs physical education.

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