CHAPTER I

Influence recreational training – spinning at improving physical fitness of women

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Keywords: spinning, recreational training, physical performance

INTRODUCTION

Conditions of life in the twenty-first century greatly changed biological personality shaped in the process of evolution. The level of physical activity, often decisive for our lives, deteriorated as a result of the dynamic development of mechanization and automation [5].
The human body shaped and once accustomed to physical activity is not able to function properly without movement. Its absence leads to a systematic reduction of physical performance and physical activity and the spread of civilization diseases such as atherosclerosis, metabolic diseases, obesity, diabetes, diseases of the circulatory and respiratory systems, lower resistance to infections, and cancer. These diseases are common among people with low physical activity and life, and inadequate in relation to the dietary energy expenditure [2].

In this situation, more and more people are looking for ways to prevent the negative effects caused by the development of civilization. One of them is physical recreation, which meets the expectations concerning the health needs and aesthetic body, but also social. The concept of recreation means a return to the original state, in other words, is the restoration to life, strengthening, and the creation anew [11].

Among the wide range of leisure activities in one of the most popular is now the Spinning that can significantly improve the proper functioning of the body, and above all to increase the performance withstanding the human body. Physical performance is the result of many factors, physiological, biomechanical and psychological. This means the ability to severe or extended physical activity, involving large muscle groups, without major changes in homeostasis, after which follows the completion of a quick return to physiological indicators of resting [8]. It determines the aerobic and anaerobic energy potential of muscle cells, the ability to use oxygen and disposal of waste products, efficiency of processes of thermoregulation, motivation and many other factors [4,12].

Efficiency also depends largely on physical activity, age and gender. There is not a permanent, and its development is possible through regular exercise. The range of the changes occurring in the human body mainly depend on run-time effort, its intensity, and the amount of muscle involved in the work performed and the type of contractions which are the muscle fibers during exercise.

Physical performance changes with age. After completing 25 years of age begins to fall as a result of natural processes getting old. Despite this, by recreational exercise capacity can be increased irrespective of age. People with large efficiency are able to perform exercise in a more efficient manner, while having a lower cost of physiological compared to someone less-competent [9].

Lack of physical activity and its deficiency leads to a state in the human body that activities requiring even a small effort, become a heavy burden for the untrained organism. Therefore in developing research analyzes the impact of recreational activity using Spinning in the group of women. This form seems to be very reasonable in this social group, since it has also has aesthetic value (place of exercise, dress, and the ambience of the surroundings). When analyzing the impact of workout on the development of recreational the Spinning efficiency also shown how to assess this parameter, which can be easily used to evaluate the available and used in monitoring the effects of efficiency workout in a recreation.
OBJECTIVE RESEARCH AND BASIC ASSUMPTIONS.

The aim of the study is an attempt to control the process of organized activities of recreation to improve human health, showing the inspection process in terms of the assessment of efficiency of the body for recreational purposes (control methods) and for the control of individual participants in recreational workout (control current and periodic inspection).

To determine the level of efficiency of the organism will be essential answer to the fundamental question:

To what extent will increase efficiency indicator organism recreational participants underwent workout stimulus mobility in training recreation? Taking into account the main objectives of workout of recreational assume “important improvement in the growth efficiency of the human body under the influence of organized recreational activity expressed by the appreciation of the normative”

MATERIAL OF RESEARCH

The study was conducted in a recreation group of women who in their spare time practiced organized recreational training - the Spinning. These were people who were not involved other recreational physical activity. Recreational physical activity (the Spinning) have chosen voluntarily as a weekly recreational training, with the belief that regular exercise will increase their fitness and improve physical health.

Recreational training and research carried out in the cycle of 1.5 months in the period August - December 2013 in the club “Fitness Academy” and individual groups of exercisers by. Recreational spinning the announced workout.

Group of women surveyed consisted of 20 people aged 21 - 40 years.

Recreational workout program cycle spinning had 18 lessons and was run 3 times a week (Monday - Wednesday - Friday) - 92% attendance exercisers. Training Lesson (60 minutes) consisted of general and specific warm-up - 10 minutes, a body-40 min., Spinning workout (intensity in heart rate of 60 - 65% HR max, measurement Polar sport tester) and part of the final-exercise stretching calming + (10 minutes).

Exercises performed on Cycloergometer and Spinner Bikes (pic.1).

Organization of trainings held in groups in fitness hall (pic. 2) or individually by the training program developed recreational Spinning.

Pic. 1. Exercise during group Spinning activities [4]
The performance of the participants is measured using "HARVARD STEP-UP TEST" [7].

This test is based on the degree of entering a height of 46 cm. at a rate of 30 times per minute. In a word „once!” studied put your left foot on the step, a word „two!” put right foot to left-at full flexion in the knee and hip joints on a word „three! ”put your left foot on the floor, on a word, the „four!” right foot dostawiała the left foot (on the floor), assuming an upright posture. The duration of one cycle was 2 seconds.

After four minutes studied sat in the chair and the person conducting the test after 1 minute of rest performed operations in the measurement of pulse rate:

a. - from 1 minute to 1 minute 30 seconds, and then
b. - from 2 minutes to 2 minutes 30 seconds, and
c. - from 3 minutes to 3 minutes 30 seconds. There were three measurements after 30 seconds, the heart rate measurement was made by POLAR ELECTRO sport-tester.

Later in the research efficiency pointer was calculated according to the formula FI:

\[
FI = \frac{\text{time in seconds „s”}}{2 \times (a + b + c)} \times 100
\]

Measurable value determination was made on the efficiency of the beginning and end of recreational training series (after 18 training).

In order to compare the results obtained have been applied basic statistical calculations: standard deviation, mean and Student's t test was defined level of significance of differences [2]. With the verification of the hypotheses assumed significance level \( \alpha = 0.05 \) (*- p<0.05).

**TEST RESULTS**

The essence of training is not only recreational increase mobility parameters but mainly to improve the efficiency of the body, which is the basis for the development of other abilities. The size of this parameter will set the state of the body's response to fatigue, inform us how your body will tolerate the effort whether in terms of functional equilibrium system or big changes in the conditions that are pushing your body. Also training is a recreational motor movements that improve strength. Not only improve the functioning of the body in the sphere of energy transformations but also improve mental sphere in terms of the will and personality traits. We can conclude that training in physical recreation is taking care of the state of human health and the improvement of its vital functions [10].

Whereas health aspects in the training of recreational physical activity in research focused on the health values of this form of movement, it is the dynamics of changes in efficiency parameters of the body, which means an evaluation of the effectiveness of this form of recreation for the health of womens. In terms of rese-
arch represents an increase of measurable parameters in terms of efficiency to exhibit tolerance of the human body fatigue.

In the aspect of the application of interest were the changes that have arisen in individuals under the influence of the use of recreational Spinning workout.

In clinical parameters of renal rated Harvard test [7], the reaction of the circulatory system of the body to exercise (heart rate). The evaluation was performed for the first test (before training recreational) and for the second test (after completion of training recreational). These studies, which set measurable values presented in the assessment of efficiency of women in Table 1.

The analysis of the data shows that for the second test, which was used after the training of recreational spinning achieved higher performance. Measurable values obtained for the second study in a group of recreational workout spinning were higher by 7.2 points. FI pointer (an increase of 10.2%), which significantly improves the efficiency of women participating in training facilities. This fact tells us also that this form of physical activity contributed to a significant improvement of the cardiovascular system in response to the load of the body.

Table 1. The values of measurable parameters characterizing withstanding the sample of Harvard test for a group of women in the I and II study

<table>
<thead>
<tr>
<th>Number of participant</th>
<th>FI in the test (points)</th>
<th>FI in II test (points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40</td>
<td>45.5</td>
</tr>
<tr>
<td>2</td>
<td>83</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>56.5</td>
<td>61</td>
</tr>
<tr>
<td>4</td>
<td>42</td>
<td>47.5</td>
</tr>
<tr>
<td>5</td>
<td>85</td>
<td>91.5</td>
</tr>
<tr>
<td>6</td>
<td>54</td>
<td>61</td>
</tr>
<tr>
<td>7</td>
<td>65.5</td>
<td>72</td>
</tr>
<tr>
<td>8</td>
<td>52</td>
<td>60.5</td>
</tr>
<tr>
<td>9</td>
<td>75</td>
<td>88</td>
</tr>
<tr>
<td>10</td>
<td>68.5</td>
<td>76.5</td>
</tr>
<tr>
<td>11</td>
<td>51</td>
<td>60.5</td>
</tr>
<tr>
<td>12</td>
<td>62.5</td>
<td>70</td>
</tr>
<tr>
<td>13</td>
<td>76.5</td>
<td>85</td>
</tr>
<tr>
<td>14</td>
<td>60.5</td>
<td>67.5</td>
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<tr>
<td>15</td>
<td>53</td>
<td>58</td>
</tr>
<tr>
<td>16</td>
<td>65.5</td>
<td>72.5</td>
</tr>
<tr>
<td>17</td>
<td>72</td>
<td>83</td>
</tr>
<tr>
<td>18</td>
<td>63</td>
<td>67.5</td>
</tr>
<tr>
<td>19</td>
<td>74.5</td>
<td>81</td>
</tr>
<tr>
<td>20</td>
<td>66.5</td>
<td>73</td>
</tr>
<tr>
<td>Average Value</td>
<td>63.33</td>
<td>70.58</td>
</tr>
</tbody>
</table>
The test results presented in Table 1 for 1 and 2 studies demonstrate the FI index values of the differences, therefore, in a further test, the level of statistical significance of differences efficiency parameters. Table 2 shows that the parameters of the capacity between the first and second test in both groups engaged in recreational forms Spinning much physical activity (statistically) are different – level of differentiation is high and remains at the level of statistical significance $\alpha = 0.05$. This means that the recreational form of physical activity Spinning grown systematically helped to improve efficiency, this is important for health, because fatigue with exercise (shown in studies) is of fundamental importance to human health [6].

Table 2. Level of significance of differences in functional capacity 1 and 2 test in a group of recreational Spinning workout

<table>
<thead>
<tr>
<th>Statistical parameters</th>
<th>FI in 1st test (points)</th>
<th>FI in 2nd test (points)</th>
<th>The significance of differences between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>The arithmetic mean</td>
<td>63.33</td>
<td>70.58</td>
<td>0.0415*</td>
</tr>
<tr>
<td>The standard deviation</td>
<td>12.44</td>
<td>13.30</td>
<td></td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>19.65</td>
<td>18.85</td>
<td></td>
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</tbody>
</table>

*level of significance - $\alpha = 0.05$

From the data presented in the study shows that the developed recreational Spinning training significantly improved the efficiency index value calculated on the basis of Harvard Test. Although these values do not have high standards (standard average) – [7], but significant differentiation for 1 and 2 studies confirmed a significant improvement in functional capacity of the organism participants organized recreational physical activity (increase from the standard sufficient for standard average).

So taking into account the importance of the health of recreational workout Spinning must be noted that this form of activity is not only a positive effect on the motor system but also improves the physical capacity of the body. The detailed characterization workout Spinning is one of the most effective forms of aerobic training [5]. In this form of movement, exercise techniques are easy, therefore the practice of spinning can begin at any age. In a very simple way you can control the intensity of the workout. Its main advantage is that the workout may participate not only the muscles of the lower body, but also the muscles of the upper limbs, spine, chest and abdomen [6].

Doing Spinning universal we can shape our selection of muscle groups through the use of a larger amount of exercise. It is the perfect solution for those who ride on the bike responds in improving physical fitness. Therefore, this type of recreational activity is one of the intensive forms of movement. During training, spinning lasting 60 minutes can burn up to 1200 calories [2], hence also this activity is important for healthy weight loss.
During such training increases muscle demand for oxygen is used to burn the accumulated before the material energy. The oxygen contained breath involving the lungs and circulatory system by means of hemoglobin, is supplied to all tissues. Its distribution within individual organs is not uniform and depends largely on the current demand. Precisely for this reason it is not recommended before a planned effort to consume a large volume, heavy meal, conducive to enhanced inflow of blood to the abdominal organs, rather than burdened with workout muscles [5] Compliance with this rule is very significant for the health and applies the rational aspect in training spinning.

In practice spinning a universal should strive to work the muscles in aerobic conditions. When oxygen demand exceeds supply, for some time the muscles can use the energetic material. This process is much less efficient and, importantly, short-lived because of the rapid build up of lactic acid. It is also possible under these conditions, the use of fat as a source of energy. As a result of systematic, properly developed training may improve tolerance to fatigue, mainly through an increase in cardio-respiratory capacity [11].

As apparent from the foregoing used recreational workout Spinning significantly affects the body's aerobic capacity, these benefits are significant and contribute to processes such as:

- Fat metabolism. During exercise the heart rate aerobic body prefers to burn fat.
- Better results in tolerance of load. Aerobic exercise improves maximum oxygen utilization during exercise (VO2 Max), is an essential factor to forecasting results in terms of strength.
- A stronger immune system. With physical exercise can boost the immune system because they help increase the number of macrophages and T-cells in the circulation. Research shows that increasing the number of these cells in the immune system, you can get better protection against diseases such as cancer.
- Increased resistance to fatigue. The more productive the work of the heart as a pump, the more efficiently it provides the body with oxygen. Oxygenation while translates into increased energy level in the human body.
- Reduced risk of heart disease. It was found that the aerobic exercise has a positive effect on all the uncontrollable risk factors for heart disease, including blood pressure and serum total cholesterol.
- Decreased tension and help in sleeping. Exercise improves homeostasis, or balance in the body. Hormones are kept in better balance and nerve stimulation is reduced, creating better conditions for rest.
- Improved overall strength. The heart is stronger, the less work needs to perform over time to achieve the same cardiac output. With less effort, you get greater strength.
- Psychological benefits. There is plenty of evidence that 30 minutes of exercise a day improves mood, reduces symptoms of anxiety, depression and stress, promoting wellbeing mood (the release of endorphins).
Increased cardiac output. When the heart is subjected to exercise. Left ventricle changes shape and becomes stronger. This means that during each heartbeat, it is able to empty more blood. Therefore, the amount of blood supplied to the minute organism (hereinafter cardiac output) is increased.

- The increased number and size of the capillaries. Effects of exercise are not limited to the heart, also feels advantages rest of the circulatory system. Improve the vascular bed, thereby, the whole body will be distributed larger quantities of blood rich in nutrients [7].

It follows that recreational physical activity allows for optimal physiological norms that induce adaptive changes that ensure the smooth functioning of the body [1].

The analysis of the data can be seen a significant increase in performance capacity and endurance. (measurable increase in the applied training recreational). So given the results can be clearly stated that the training significantly increased recreational performance in terms of the capacity of individuals.

CONCLUSIONS

1. Organized recreational activity greatly increases the efficiency and endurance of the body,

2. Systematic training Recreation raises the body's health benefits

3. Control of the body in training recreation sets the standard for human welfare

REFERENCES


Conditions of life in the modern world greatly changed personality shaped the biological process of evolution. The level of physical activity, often determines our life deteriorated as a result of the dynamic development of mechanization and automation. The human body shaped and once accustomed to physical exertion is not able to function properly without movement. No Movement leads to a systematic reduction of physical fitness and physical activity, and the spread of this disease of civilization. These diseases occur among people with low life activity and mobility, and inadequate in relation to the number of calories your diet. The practice of physical activity is designed to improve the efficiency of the human body and being exerciser, so his physical and mental health. The aim of the study is an attempt to demonstrate the efficiency of the human body, subjected to regular effort during Spinning course getting improved. Taking into account the main objectives of the training of recreational hypothesized: short period of regular exercise in your workout Spinning improves physical performance of athletes body. The tests involved 20 women aged 21 to 40 years who attended spinning classes three times a week and it was for them the only form of exercise. The tests were conducted in 2013 in Krakow, and the studied group was subjected to regular workouts Spinning for a period of six weeks, conducted 18 training units of leisure. To determine the efficiency of practitioners using step – Harvard Test [7]. From the analysis of test results conclude: Organized recreational activity greatly increases the efficiency and endurance of the body; Systematic training Recreation raises the body's health benefits; Control of the body in training recreation sets the standard for human welfare.
Warunki życia we współczesnym świecie w znacznym stopniu zmieniły biologiczną osobowość człowieka kształtowanego w procesie ewolucji. Poziom aktywności fizycznej, często decydujący o naszym życiu, uległ pogorszeniu, w wyniku dynamicznego rozwoju mechanizacji i automatyzacji. Organizm ludzki kształtowany i przyzwyczajony nigdy do wysiłku fizycznego nie jest w stanie prawidłowo funkcjonować bez ruchu. Jego brak prowadzi do systematycznego obniżania wydolności fizycznej i aktywności ruchowej oraz szerzenia się chorób cywilizacyjnych. Choroby te występują wśród osób o małej aktywności życiowej i ruchowej, oraz nieadekwatnym w stosunku do wydatku energetycznego sposobie odżywiania. Uprawianie aktywności ruchowej ma za zadanie poprawę sprawności funkcjonowania organizmu człowieka oraz samopoczucia osoby ćwiczącej, a więc jego zdrowia fizycznego i psychicznego.