Features of the physical condition of women of the first period of adulthood

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Abstrakt
The aim: to establish the features of the physical condition of women of the first period of adulthood.

Material and methods. Participants. This study involved 60 women of the first period of adulthood. The women were divided into 2 groups. The average age of women in the control group was 29.87 years (n = 30), experimental - 30.57 years (n = 30). All of them were engaged in aqua fitness in Dnipro on the basis of the fitness center Sport life. All study participants gave written consent to participate in the study. Organization of the research. The research was conducted on the basis of the Sport life fitness center. Medical and biological testing was performed under the supervision of a fitness center doctor.

Results. In each group, 56.67% of women with normal body weight and an average risk of comorbidities were identified. The number of women with grade I obesity was 26.7 ± 3.3%. The number of women with normosthenic body type 66.8 ± 3.3%. With asthenic - 10-20% and 6.67-13.32% - with hypertensive. 83.3-90% of women in terms of proportional breast size correspond to the level of participants in beauty contests; 40-43.3% require an individual increase in the total volume of the girth of the shoulder; 49.6-53.3% of women need a comprehensive increase in muscle tissue with a decrease in adipose tissue. The percentage of excess fat in women ranges from 2.06 ± 0.69% to 1.87 ± 0.64%. Correspondence of indicators of vital capacity of lungs to proper was found in 3,33% of women of experimental group and in 13,33% of control.

Conclusions. The use of a differentiated approach to aqua fitness with women of the first period of adulthood will not only improve the above indicators, but also the level of somatic (physical) health of women, indicators of the functionality of the cardio-respiratory system and resistance to hypoxia.

Keywords: comprehensive indicators; degree of obesity; level of physical health
Introduction

In the system of universal values, a high level of health determines the possibility of full-scale realization of the potential abilities of the individual [1]. The average life expectancy of Ukrainians is 11.7 years less than in socially prosperous European countries. The average life expectancy (not burdened by chronic non-communicable diseases) is 12.4 years less than in these countries. According to these indicators, Ukraine is inferior to Poland, Belarus, Slovakia, Hungary, Bosnia, Herzegovina, Turkey, Armenia, Albania, Moldova [2].

As a result of research, it is found that currently the problem of maintaining and strengthening the physical condition of women of the first period of adulthood remains important [3, 4]. Experts, in their work, point out that every year there is a regression in involutionary processes in all systems, organs and tissues. Decreased physical activity affects the physical condition of women, in particular their physique.

To increase the effectiveness of health physical education for women of the first period of adulthood and optimize their physical activity, scientists are looking for new approaches to the preparation of physical culture and health programs. At present, the peculiarities of recreation in physical culture of different groups of the population have been established [5], various health and recreational technologies have been proposed [2], individual fitness training programs for women of the first mature age [6] and others have been developed. should provide women with the required level of physical activity. This level will have a positive effect on strengthening the indicators of their physical condition.

One of the characteristics of the physical condition is the physique [1, 7]. It gives an idea of the spatial organization of morphological components of the organism, the proportions and constitutional features of the body. According to scientists, the deviation of body components from the optimal values negatively affect the physical and emotional state of women.

At different times, studies of physical development, physical fitness, functional women of the first period of adulthood were engaged in a whole cohort of scientists [8, 3, 9, 10]. women. In addition, many women want to maintain and adjust the shape of their body above all else. However, unfortunately, some of them ignore their own health and engage in those types of physical activity that are contraindicated.

Scientists insist on the importance of aqua fitness [11, 12]. It is the most popular type of wellness due to its accessibility, emotionality and effectiveness [3, 4, 13, 14]. They indicate a positive effect of water properties on the development of all muscle groups without a load on the musculoskeletal system. This allows you to use aqua fitness for women with contraindications to training on land. In addition, aqua fitness is one of the main factors in slowing down the aging process, maintaining good health and increasing physical activity.

However, for effective planning of aqua fitness with women of the first period of adulthood, it is not important evidence of physical development or their physical fitness, or some knowledge about the peculiarities of their functional state. It is important and not yet implemented to conduct comprehensive studies of the level of physical condition of this category of women. Thus, the analysis of data by domestic and foreign authors showed the lack of objective data on the physical condition of modern women in the first period of adulthood. It is the determination of the physical condition of women of the first period of adulthood that requires further research, which determined the direction and relevance of these studies.

Hypothesis. It was assumed that conducting comprehensive studies of the level of physical condition of women in the first period of adulthood will create a certain idea of the current level of their physical condition. This will contribute to the development of an effective differentiated approach to aqua fitness with this contingent.

The aim: to establish features of a physical condition of women of the first period of mature age.

Material and methods

Participants

This study involved 60 women of the first period of adulthood. The average age of women in the control group was 29.87 years (n = 30), experimental - 30.57 years (n = 30). All of them were engaged in aqua fitness in Dnipro on the basis of the fitness center Sport life. All study participants gave written consent to participate in the study.

Organization of the study

The research was conducted on the basis of the Sport life fitness center. Medical and biological
Testing procedure

The method of anthropometry was used to determine the level of physical condition of women. The length and weight of the body, the girth of the chest were revealed. To measure body shape, the circumference of the wrist, chest, shoulder, buttocks, thighs, waist, and shin was measured. The ideal body weight was calculated by Beringard's formula by dividing the product of body length and chest circumference by 240 [15].

Assessment of the harmony of body shape was performed by calculating the index of proportionality of muscle development by dividing the length of the body by the circumferential dimensions of different parts of the body and comparing the actual and normative values ??[5].

According to the criterion of division of degrees of obesity on the basis of the distribution of adipose tissue determined the type of figure (gluteofemoral (female) or abdominal (male)). This criterion was defined as the ratio of the size of the waist and hips [3, 14]. Determination of the fat component of body weight was carried out on the basis of determining the thickness of fat folds. The thickness of fat folds is an indicator of the presence of excess adipose tissue in the body. We used a simple and affordable method using a caliper. The determination was performed in the lower part of the anterior abdominal wall. The fat fold was taken vertically.

In order to individually assess the obtained indicators, a body mass index was calculated. This indicator was used to determine the presence of excess weight. The deviation of the real body weight from the ideal was established.

The calculation of the vital index involved objectification of the vital capacity of the lungs.

The strength index allows you to estimate the strength of the flexor muscles of the stronger arm as a percentage of body weight. The measurement is performed using an oxygen dynamometer.

Spirometry was used to determine the functional state of the respiratory system. The obtained results were compared with the appropriate value of the vital capacity of the lungs [16].

In order to determine the time of respiratory arrest on inspiration after 3 deep breaths and exhalations, the Stange test was performed [17]. The purpose of the Gench test [18] was to determine the time of respiratory arrest on complete exhalation. To do this, take three breaths to 3/4 of the depth of full breath and hold your breath.

Measurement of heart rate was determined by palpation on the radial (carotid) artery at rest. Pulse rates were recorded for 10 s, followed by enumeration for 1 min. [19].

Systolic and diastolic blood pressure were measured using an electronic tonometer "Microlife" by a standard method [20]. Systolic blood pressure characterized the entire energy reserve, which actually has a blood flow in this area of the vascular bed. Diastolic or minimum blood pressure provided information about the degree of patency of the capillaries and the elasticity of blood vessels.

In order to study the condition of women in more detail, additional indicators of the functioning of the circulatory system were calculated. This is the minute volume of blood - the amount of blood that the heart pumps per minute. Knowledge of this indicator allowed to judge the mechanical function of the myocardium. This indicator reflects the state of the circulatory system as a whole.

The highest level of aerobic metabolism during exercise was planned to be determined by the indicator of maximum oxygen consumption. This indicator is an indicator of the aerobic capacity of the body. Above this limit, the muscles find themselves in a state of insufficient oxygen supply during exercise. Anaerobic metabolic processes increase in them. The maximum oxygen consumption was determined by the Dushanin method [20]. Diagnosis was performed on four indicators (A, B, C, D), which were evaluated in points. A. Age. Each year of life was equal to 1 point. B. Pulse at rest. For each reduction below 95 beats·min⁻¹ there was 1 point. At a pulse of more than 95 beats·min⁻¹ points were not added. B. Pulse recovery. Heart rate was measured after 5 minutes of resting in a sitting position for 1 minute. After that, the test participant did 20 deep squats for 40 s and sat down again. After 2 min, the pulse was measured again for 10 s and the result was multiplied by 6. Correspondence to the initial value was equal to 30 points, exceeding by 10 beats·min⁻¹ - 20 points, 15 - 10 points, 20 - 5 points, more than 20 - 10 points were deducted from the total amount. D. Heart volume. For each increase in heart volume calculated by the formula below, starting at 270 cm³, 5 points were added per 10 cm³.

The Skibinsky index was used for a comprehensive assessment of the state of the cardiovascular and respiratory systems [21].

The level of somatic (physical) health \ was determined by the method of LG Apanasenko "Express screening of the level of solitary health" [20]. This technique is based on indicators of anthropometry and the state of the cardiovascular
system. The criterion of reserve and economization of cardiovascular functions was recognized by the Robinson index by dividing the product of heart rate and systolic blood pressure by 100. It characterized the state of regulation of the cardiovascular system and the level of metabolic and energy processes in the myocardium.

**Statistical analysis**

Statistical processing of the study materials was carried out using the software package Microsoft Excel 2010. The data are presented as an average. To conduct a comparative analysis of indicators based on the test results, a variance analysis was performed. We determined the intragroup variance (D). This indicator indicates a random variation that may occur under the influence of any unaccounted for factors and which does not depend on the sign-factor underlying the group. In order to determine the characteristics of the relative fluctuations of the extreme values of the sign around the average, the oscillation coefficient (VR) was calculated.

In order to determine the differences between the data obtained using the same test for testing two groups of women, we used an unrelated Student's t-test. When checking the reliability, the reliability levels $P = 0.95$ were taken as a basis, which corresponds to the significance level $p> 0.05$.

The study protocol was approved by the University Ethics Committee.

**Results**

Determination of anthropometric and comprehensive indicators of women of both groups (table 1) proved their heterogeneity. There were no statistically significant differences in Student's t-test between groups ($p> 0.05$).

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Experimental group</th>
<th>Control group</th>
<th>t_{tp}</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>D</td>
<td>$V_{t}$,%</td>
<td>$\bar{x}$</td>
</tr>
<tr>
<td>Body length, cm</td>
<td>169.30</td>
<td>14.08</td>
<td>12.99</td>
<td>168.40</td>
</tr>
<tr>
<td>Body weight, kg</td>
<td>73.18</td>
<td>108.33</td>
<td>81.99</td>
<td>68.10</td>
</tr>
<tr>
<td>Body mass index, kg·m$^{-1}$</td>
<td>25.39</td>
<td>24.77</td>
<td>69.19</td>
<td>23.88</td>
</tr>
<tr>
<td>Ideal body weight, kg</td>
<td>66.33</td>
<td>61.82</td>
<td>64.47</td>
<td>52.74</td>
</tr>
<tr>
<td>Deviation of real body weight from ideal,%</td>
<td>-0.10</td>
<td>0.01</td>
<td>-444.8</td>
<td>-0.05</td>
</tr>
<tr>
<td>Wrist circumference, cm</td>
<td>15.90</td>
<td>2.92</td>
<td>56.60</td>
<td>15.87</td>
</tr>
<tr>
<td>Chest girth, cm</td>
<td>93.80</td>
<td>51.17</td>
<td>51.17</td>
<td>91.77</td>
</tr>
<tr>
<td>Shoulder circumference, cm</td>
<td>31.57</td>
<td>26.81</td>
<td>27.86</td>
<td>32.71</td>
</tr>
<tr>
<td>Buttock girth, cm</td>
<td>99.17</td>
<td>286.23</td>
<td>79.72</td>
<td>93.80</td>
</tr>
<tr>
<td>Range tightened, cm</td>
<td>61.75</td>
<td>90.46</td>
<td>58.30</td>
<td>59.27</td>
</tr>
<tr>
<td>Shin circumference, cm</td>
<td>36.63</td>
<td>56.52</td>
<td>120.11</td>
<td>37.43</td>
</tr>
<tr>
<td>Waist circumference, cm</td>
<td>77.10</td>
<td>187.13</td>
<td>55.77</td>
<td>75.20</td>
</tr>
</tbody>
</table>

Table 1

Note: t_{critical} = 2.042 at p <0.05

In each group, 56.67% of women with normal body weight and an average risk of comorbidities were identified. The experimental group included 33.3% of women with grade I-II obesity. In the control group, this figure was 26.67%.

Also in this group there were 10% of women with weight deficit.

Determination of body type of women according to the Solovyov index revealed in the experimental group 10% of women with asthenic body type, 83.33% with normosthenic and 6.67% with hypertensive; in the control - 20% of women.
with asthenic, 66.68% with normosthenic and 13.32% with hypertensive (p> 0.05).

Assessment of the harmony of body shape was performed by calculating the index of proportionality and comparing the actual and normative values (table 2). The indicator of the oscillation coefficient showed a significant heterogeneity of groups in all indicators. There were no statistically significant differences in Student’s t-test between groups (p> 0.05).

**Table 2**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Experimental group</th>
<th>Control group</th>
<th>t&lt;sub&gt;up&lt;/sub&gt;</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest girth, cm</td>
<td>1.83 0.04 43.55</td>
<td>1.85 0.02 32.17</td>
<td>0.70</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Shoulder circumference, cm</td>
<td>5.49 0.69 67.94</td>
<td>5.43 1.06 90.69</td>
<td>0.81</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Buttock girth, cm</td>
<td>1.77 0.14 97.01</td>
<td>1.85 0.15 94.72</td>
<td>0.41</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Range tightened, cm</td>
<td>2.80 0.19 67.39</td>
<td>2.89 0.14 56.90</td>
<td>0.40</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Waist circumference, cm</td>
<td>2.25 0.02 -72.74</td>
<td>2.28 0.10 51.06</td>
<td>0.56</td>
<td>&gt;0.05</td>
</tr>
</tbody>
</table>

Evaluation of the degree of deviation of the size of the girth of different parts of the body from the normative values determined the following. The experimental group included 83.33% of women with indicators of proportional breast size at the level of participants in beauty contests. At the same time, 40% of women in this group need an individual increase in total shoulder circumference due to the development of muscle tissue without reducing the amount of adipose tissue. 53.33% of women need a comprehensive increase in muscle tissue with a decrease in adipose tissue. In the control group, the corresponding indicators were 90%, 43.33% and 49.6%, respectively.

Areas of the waist, buttocks and thighs (70%, 43.33% and 30% of women in the experimental group and 76.67%, 69.99% and 66.66% of control women, respectively) need an individual reduction in girth due to the reduction the amount of adipose tissue.

In order to more closely assess the body composition of women, we determined the fat component of body weight based on the determination of the thickness of fat folds. Thus, we were able to determine the presence of excess fat in women. In women of the experimental group revealed 2.06 ± 0.69% of excess fat, control - 1.87 ± 0.64% (p> 0.5). At first glance, for the most part, all women had a normal fat component. Detailed analysis of the obtained data revealed in the experimental group 30% of women with excess fat. In the control group, 23.33% of women had excess fat and 6.67% - with fat deficiency. In both groups, 6.67% were found with indicators of fat fold thickness at the limit of the norm. Such women are prone to excess fat. The experimental group also included 6.67% of women with a figure type on the lower limit of this index (according to the criterion for dividing the degree of obesity on the basis of fat distribution). These women will be able to switch to the gluteofemoral (female type) with a properly adjusted differentiated approach to aqua fitness.

The strength index was assessed to determine the strength of the flexor muscles of the stronger arm as a percentage of body weight (Table 3).

In both groups of women there was a mostly low level of strength index. In the experimental group, 10% of women had below average somatic health according to this index. In the control group, this figure was 23.3%. No statistically significant differences between groups were found (p> 0.5). There is a significant heterogeneity of the sample in terms of oscillation coefficient.

There were no statistically significant differences (p> 0.5) among the functional indicators of the cardiovascular and respiratory systems in both groups of women. Determination of the oscillation coefficient showed a significant fluctuation of the extreme values of the feature around the average value (Table 4).
Table 3

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Experimental group</th>
<th>Control group</th>
<th>t_up</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamometry of the right hand, kg</td>
<td>21.93</td>
<td>30.41</td>
<td>127.66</td>
<td>21.80</td>
</tr>
<tr>
<td>Dynamometry of the left hand, kg</td>
<td>20.57</td>
<td>23.50</td>
<td>126.42</td>
<td>20.23</td>
</tr>
<tr>
<td>Power index, cu</td>
<td>32.30</td>
<td>102.11</td>
<td>150.78</td>
<td>34.10</td>
</tr>
</tbody>
</table>

Table 4

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Experimental group</th>
<th>Control group</th>
<th>t_up</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital capacity of the lungs, ml</td>
<td>2492.0</td>
<td>83009.66</td>
<td>40.93</td>
<td>2448.17</td>
</tr>
<tr>
<td>Proper vital capacity of the lungs, l</td>
<td>3.54</td>
<td>0.07</td>
<td>0.23</td>
<td>3.52</td>
</tr>
<tr>
<td>Life index, ml·kg(^{-1})</td>
<td>35.51</td>
<td>55.25</td>
<td>95.39</td>
<td>37.57</td>
</tr>
<tr>
<td>Sample Barbell, s</td>
<td>36.67</td>
<td>22.16</td>
<td>73.64</td>
<td>36.93</td>
</tr>
<tr>
<td>Test Gencha, s</td>
<td>31.20</td>
<td>22.17</td>
<td>80.13</td>
<td>31.60</td>
</tr>
<tr>
<td>Heart rate, beats · min(^{-1})</td>
<td>76.60</td>
<td>212.73</td>
<td>70.50</td>
<td>72.80</td>
</tr>
<tr>
<td>Systolic blood pressure, mm Hg</td>
<td>116.87</td>
<td>138.26</td>
<td>35.08</td>
<td>117.10</td>
</tr>
<tr>
<td>Diastolic blood pressure, mm Hg</td>
<td>71.37</td>
<td>88.45</td>
<td>60.25</td>
<td>70.03</td>
</tr>
<tr>
<td>Minute blood volume, ml</td>
<td>4243.38</td>
<td>1035433.16</td>
<td>0.95</td>
<td>4247.41</td>
</tr>
<tr>
<td>Systolic volume, l</td>
<td>56.22</td>
<td>172.10</td>
<td>0.74</td>
<td>58.25</td>
</tr>
<tr>
<td>Pulse pressure, mm Hg</td>
<td>45.50</td>
<td>235.98</td>
<td>105.49</td>
<td>47.07</td>
</tr>
<tr>
<td>Average dynamic pressure, mm Hg</td>
<td>86.53</td>
<td>52.61</td>
<td>40.83</td>
<td>85.72</td>
</tr>
</tbody>
</table>

Correspondence of indicators of vital capacity of lungs to proper was found in 3.33% of women of experimental group and in 13.33% of control. The indicators of the Stange and Gench tests were at the lower limit of the permissible norm. In 44.33% of women in the experimental group and in 36.67% of the control group there was a good functional state of the cardiovascular system in terms of heart rate. In the experimental group also found 13.33% of women with excellent, 20% with poor and 22.34% with satisfactory functional status of the cardiovascular system. In the control group, these indicators were 26.67%, 13.33% and 23.33%, respectively.

The minute volume of blood indicates the normal mechanical function of the myocardium and the normal state of the circulatory system in general in women of both groups. Analysis of the average dynamic pressure indicates the consistency of the regulation of cardiac output and peripheral resistance. In combination with other parameters, it made it possible to determine the state of the precapillary bed as normal.

In terms of blood pressure, 56.67% of women in the experimental group and 76.67% of the control group had an optimal level of blood pressure, 40% - a normal level and 3.33% - elevated. No
statistically significant differences between groups were found (p > 0.5).

In order to determine the maximum productivity of the oxygen transport system, the maximum capacity of aerobic energy supply (maximum aerobic capacity), the indicator of maximum oxygen consumption was determined. This figure is the highest level of aerobic metabolism during exercise. Above this limit, muscles find themselves in conditions of insufficient oxygen supply. Anaerobic metabolism increases in the muscles. Determination of the maximum oxygen consumption by the method of Dushanin allowed to establish the following indicators: in the experimental group - 42.89 ± 3.09 ml · min⁻¹, in the control - 42.83 ± 2.05 ml · min⁻¹. Given the error of 10% (which occurs when indirectly determining the maximum oxygen consumption by this method) in women of the experimental group, this figure was

38.6-42.89 ml · min⁻¹, and the control - 38.55-42.83 ml · Min⁻¹. There was no statistically significant difference between the groups (p > 0.5).

The Skibinsky index was used for a comprehensive assessment of the state of the cardiovascular and respiratory systems. The indicators of the Skibinsky index of women were mostly at a satisfactory level (66.67% of women in the experimental group and 63.33% of the control group). In the experimental group, this figure was 12.26 ± 2.73 units, and in the control group - 12.74 ± 2.94 units. No statistically significant differences between groups were found (p > 0.5).

Using the method of LG Apanasenko "Express screening of the level of somatic health" revealed the level of somatic (physical) health of women (Table 5).

Table 5

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Experimental group</th>
<th>Control group</th>
<th>tкр</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ratio of body weight to body length, kg · (m²)⁻¹</td>
<td>25.39</td>
<td>24.77</td>
<td>69.19</td>
<td>23.88</td>
</tr>
<tr>
<td>The ratio of vital capacity of the lungs to body weight, ml · kg⁻¹</td>
<td>35.51</td>
<td>55.25</td>
<td>95.39</td>
<td>37.57</td>
</tr>
<tr>
<td>The ratio of dynamometry to body weight,%</td>
<td>32.30</td>
<td>102.11</td>
<td>150.78</td>
<td>34.10</td>
</tr>
<tr>
<td>Product of heart rate and systolic artery, mm Hr</td>
<td>89.09</td>
<td>287.07</td>
<td>0.95</td>
<td>85.15</td>
</tr>
<tr>
<td>Recovery time of heart rate after 20 squats for 30 s, s</td>
<td>143.07</td>
<td>687.44</td>
<td>65.00</td>
<td>138.63</td>
</tr>
<tr>
<td>Overall health assessment, sum of points</td>
<td>1.33</td>
<td>5.04</td>
<td>0</td>
<td>1.70</td>
</tr>
</tbody>
</table>

The general assessment of women’s health corresponds mainly to a low level: in the experimental group 90.01%, in the control group - 83.33%. The results of rapid assessment of the level of somatic health of women in the first period of adulthood indicate a satisfactory state of the cardiovascular and respiratory systems of women and a low state of regulation of the cardiovascular system and the level of metabolic and energy processes in the myocardium. The Robinson index indicates the advantage of a low level of energy metabolism in 86.68% of women in the experimental group and 63.37 in the control group). No statistically significant differences between groups were found (p > 0.5).

Discussion

The paper assumed that conducting comprehensive studies of the physical condition of women of the first period of adulthood will create a certain idea of the current level of physical condition of women of the first period of adulthood, which will contribute to the development of an effective differentiated approach to aqua fitness with this contingent.

For the first time we conducted a comprehensive study of the physical condition of women of the first period of adulthood using methods of anthropometry, assessment of body shape harmony, proportionality index, body mass index, vital and strength indices, functional state of the cardiovascular respiratory system, circulatory system oxygen consumption. Skibinsky index.

Disharmony in the level of physical development of women has been established. Thus, from 23.33 to 30% of women of the first mature age have an excess of adipose tissue. In both groups, 6.67% of women with indicators of fat fold thickness at the limit of the norm were found. These women are
prone to excess adipose tissue. Being overweight creates conditions for abnormal health and increased risk of certain diseases (diabetes, atherosclerosis, hypertension, etc.). This needs to be addressed immediately. And one of the ways to solve this problem, in our opinion, is. This can be achieved by using aqua fitness.

This confirms the conclusion of scientists on the need to study and systematize data on the physical development of women depending on their physique in the process of health fitness [1, 6, 7] and the need to correct their body shape by aqua fitness [3, 4].

A detailed analysis of the indicators of the functional state of the cardiovascular and respiratory systems revealed significant variability in their sample in terms of the oxidation factor. Women mostly have a maximum oxygen consumption limit at the limit for untrained people. This indicator helps to increase the vital capacity of the lungs, increase the volume of circulating blood, increase the content of erythrocytes and hemoglobin, increase the efficiency and productivity of the heart and more. Low levels of maximum oxygen consumption indicate a decrease in the capacity of oxygen transport systems and the ability to use oxygen by working muscles. The results of the study of the functional state of the respiratory system of women confirm the data of TO Tit [23].

The practical orientation of the results of our study is that the results of a comprehensive assessment of the physical condition of women of the first period of adulthood are the basis for developing an effective differentiated approach to aqua fitness with this contingent of women. This approach should take into account: features of women's physique, the degree of deviation of the size of the girth of different parts of the body from the normative values, dynamometers of both hands and general strength index, growth rates of maximum oxygen consumption (oxygen transport system, physical performance, maximum capacity) aerobic energy supply (maximum aerobic capacity), the level of somatic (physical) health of women, indicators of the functionality of the cardio-respiratory system and the body's resistance to hypoxia.

Supplemented data on weight gain, decreased respiratory function and physical health in women of the first period of adulthood [24].

Prospects for further research will be to develop and implement in the process of physical culture and health classes with women an experimental group of a differentiated approach to aqua fitness, which will be developed taking into account the data obtained during our study.

Conclusions

1. A comprehensive study of the level of physical condition of women in the first period of adulthood showed disharmony in the level of their physical development, low functional status of the cardio-respiratory system and the level of somatic (physical) health. Almost 90% of women according to the degree of deviation of the size of the girth of different parts of the body from the normative values have indicators of proportionality of the girth size of the breasts at the level of participants in beauty contests. However, more than 40% of women require an individual increase in total shoulder circumference due to the development of muscle tissue without reducing the amount of adipose tissue. 53% of women need a comprehensive increase in muscle tissue with a decrease in adipose tissue. Areas of the waist, buttocks and thighs in the vast majority of women need an individual reduction in girth by reducing the amount of adipose tissue. More than a third of the women we studied are grade I-II obese. This necessitates a differentiated approach to the process of training with this contingent of women in health-improving physical culture, in particular aqua fitness.

2. When planning aqua fitness with women of the first period of adulthood, which will be implemented in the experimental group, it is necessary to take into account the low dynamics of women's dynamometry and strength index. Particular attention should be paid to the focus of exercise on the growth of maximum oxygen consumption (indicators of the oxygen transport system, physical performance, maximum capacity (capacity) of aerobic energy) (maximum aerobic capacity), age will contribute not only to the improvement of the above indicators, but also the level of somatic (physical) health of women, indicators of the functionality of the cardio-respiratory system and the body's resistance to hypoxia.

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Conflict of interest

Authors state that there is no conflict of interest.

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