CHAPTER «PHYSICAL EDUCATION AND SPORT»

PRECONDITIONS FOR WOMEN OF MATURE AGE TO ENGAGE IN STRENGTH FITNESS

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Abstract. In developed countries, health becomes a key indicator of social progress. Issues of physical inactivity, imbalanced nutrition, and stress are prioritized by the WHO. The pandemic and ongoing conflict in Ukraine have worsened the situation, increasing concerns and impacting health. Our research aims to address body weight correction in early middle-aged women, focusing on anthropometric indicators. The **research goal** is to justify and identify preconditions for engaging mature women in strength fitness. The achievement of this goal and the resolution of set tasks were facilitated by using various research **methods**, including general scientific theoretical-empirical methods, sociological methods, pedagogical methods, physiological methods, medical-biological methods, and mathematical statistical methods. The study involved 168 middle-aged women. The pedagogical experiment was conducted at the fitness center "Titan" and the fitness club "Status" in Chernivtsi, Ukraine. **Results.** A contemporary social problem is the low level of physical activity exacerbated by pandemic and war-related restrictions. This has led to health issues such as weight gain and obesity. The research focuses on women in early middle age (25-35 years), studying their anatomical and physiological characteristics and the decline in physical activity after the age of 30. Physiological changes, such as decreased muscle mass and hormone levels, require a careful approach to physical activity programs. The development of a fitness program for this

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group necessitates an individualized approach, considering motivation, morphological features, and recommendations regarding nutrition and hydration. Continuous monitoring of workouts is key to program optimization. During the pedagogical experiment, an anonymous survey of 138 middle-aged women aged 25 to 35 was conducted to understand their interests and motivations in the fitness sphere. The research aimed to identify the causes of excess body weight in middle-aged women not engaged in professional sports. Distributed via Google Forms on social networks, the survey showed that 21.7% are engaged in fitness, and only 13% do it regularly. Popular types include cardio (41.3%) and strength training (32.6%). Causes of excess weight include insufficient physical activity (44.2%), overeating (23.2%), and high stress (21.7%). Anthropometric data were used to calculate the Body Mass Index, revealing a correlation between body weight and lifestyle factors. The findings guide the development of a strength fitness program. In the next stage of our research, we organized and conducted the formative phase of the pedagogical experiment, focusing on the anthropometric indicators of mature women before the start of training. We calculated the Body Mass Index (BMI), Waist-to-Height Ratio (WHTR), Waist-to-Hip Ratio (WHR), identified body types, and conducted individual interviews. The study involved 30 mature women with an average age of 28.8 years. The analysis showed that 53% had a normal BMI, while 27% exceeded the norm. Predominant body types were X, H, and A, influencing the development of strength training programs. Most women (76%) could benefit from a strength training program for body composition correction, while those with excess weight or obesity would benefit from additional aerobic exercises and lifestyle changes. The research also considered participants' work conditions, habits, and dietary patterns, providing valuable insights for adjusting fitness programs. **Conclusions.** In our study, we analyzed the works of scientists and literature on fitness technologies in the physical education and health industry. Three categories of fitness programs were identified, with special attention given to strength fitness. Optimal parameters and means of strength training for women were established. An anonymous survey of 138 respondents was conducted to study motivations for fitness engagement and reasons for excess weight in mature women. A positive trend towards sports participation was recorded, and motivations such as maintaining shape, body weight correction, and psychosocial

well-being were identified. During the pedagogical experiment stage, anthropometric data from 30 mature women were collected and analyzed before the commencement of the strength fitness program for body weight correction. Various types of BMI disorders were identified, and information about their health, nutrition, work, and other factors was gathered.

1. Introduction

In civilized countries, the health of the nation is considered the most important social value, reflecting the overall level of social development in the country. Therefore, it is undisputed today that the primary criterion for societal well-being is the health status of the population. The issue of the health of young people is currently recognized as one of the priority areas of the WHO's activities in the 21st century, and this is extremely relevant for Ukraine as well.

The main reasons for the poor well-being of modern youth are considered insufficient physical activity throughout the day, unbalanced nutrition, the presence of harmful habits, constant stress, and, as a result, excess weight and poor psychosocial well-being. All of this has been further exacerbated by the circumstances related to the COVID-19 pandemic and the implementation of nationwide quarantine measures in 2019–2022, which complicated or even partially prevented visits to health clubs or gyms. Additionally, the ongoing open military aggression by Russia on the territory of Ukraine has further negatively impacted the health of young people, marked by increased anxiety, disruptions in eating behavior, sleep disturbances, and more.

Our scientific work is related to the current problem of body weight correction in young women, particularly in women of mature age. Numerous contemporary studies in this field have addressed this issue, and in recent years, Ukrainian researchers have obtained interesting results. Notable studies include research on health-promoting aerobics and metal fitness for women in early middle age aimed at correcting their physical condition; investigations into the most effective and simultaneously safe fitness directions (dance and strength) for young women; the development of body composition correction technology for female students using health fitness means in physical education to enhance its effectiveness; research dedicated to the issue of excess body weight among women in the second

period of middle age and the description of correction methods during independent preventive and health-improving activities using information technologies, and more.

Existing studies do not exhaustively address all aspects of the problem of body weight correction in women, so our scientific exploration can complement them, ultimately contributing not only to the correction of body weight or body composition in mature women but also to the improvement of their overall health, psychosocial well-being, stress resilience, and physical fitness.

These considerations justify the relevance of the topic of our research, related to the need to address a scientific problem that has not only theoretical but also significant practical importance for enhancing existing body weight correction technologies through strength fitness means.

The research goal is to justify and identify preconditions for engaging mature women in strength fitness. Achieving the defined research goal involves addressing the following tasks:

1. Analyzing contemporary research and professional scientific-methodical literature on modern systems and fitness technologies in the physical education and health industry, clarifying the main requirements for the structure of fitness sessions and fitness program planning, and analyzing classifications of strength exercises.

2. Identifying motivations for engaging in strength fitness among mature women.

3. Determining indicators of the physical development of the respondents.

The achievement of the goal and the resolution of the set tasks were facilitated by using the following research methods:

– General scientific theoretical-empirical methods: theoretical analysis, synthesis, comparison, and systematization of data from scientific-methodical literature and internet resources (to justify key research positions and interpret basic concepts).

– Sociological methods: surveys (conducted in an online format through self-completion Google Forms to understand the motivations of mature women for sports participation, determine the presence and potential reasons for excess body weight among participants, examine their lifestyle, sleep quality and duration, stress levels, daily physical activity, regularity of eating habits, etc.).

– Pedagogical methods: pedagogical observation, pedagogical experiment.

– Physiological methods: anthropometry (to determine indicators of body part circumferences in mature women for the observation of changes over time).

– Medical-biological methods: Body Mass Index (BMI), Waist-to-Height Ratio (WHTR), Waist-to-Hip Ratio (WHR).

– Mathematical statistical methods: mean method (calculations of arithmetic means (x) for the analysis of data obtained at different stages of the research).

2. Health characteristics of women in early middle age

Today, the issue of low levels of physical activity among people, especially children and youth, becomes extremely important in society. This problem has been exacerbated by certain restrictions during the COVID-19 pandemic and the Ukraine-Russia war. As a result of insufficient activity, there is an increase in illness rates, the emergence of excess weight, sometimes various degrees of obesity, and a negative impact on the overall psychosocial well-being of individuals.

Firstly, it is worth noting that the subject of our research is women in early middle age within the age category of 25-35 years, which can be partially classified as women in the early stages of middle age. Therefore, in this section, we will focus our attention on the anatomical and physiological features of the female body at the beginning of early middle age.

It is important to remind that for women, mature age (21 to 55 years) is divided into two age periods: the first period within 21-35 years, and the second within 36-55 years, each characterized by specific changes in the body [7].

Researchers O. V. Skrypchenko, L. V. Dolinska, and Z. V. Ogorodniichuk describe the anatomical and physiological features of an adult as follows. Manifestations of strength and endurance, the peak of our physical activity, are observed between the ages of twenty and forty. Scientists emphasize that it is between twenty and thirty years old when motor skills, functioning of physiological systems and organs, reaction speed, etc., reach their maximum. However, after thirty years, they gradually begin to decline [47].

We fully agree with the views of researchers O. P. Romanchuk and Ye. V. Dolhiyera, who, in their study, note that the period of early middle age in women is marked by involutionary processes that increase the likelihood

of a decline in physical fitness indicators, the development of pathological conditions, and by the age of thirty, we can already observe a decrease in various indicators of women's physical development and their functional potential [41].

In her work, T. O. Synytsya experimentally proved, through analyzing numerous tests of women in early middle age, that their physical fitness mainly fluctuates between the indicators of "below average" and "low." The researcher documented among the key indicators the morpho-functional and physical potential of women and their work capacity [50].

Analyzing the scientific literature on this issue, we drew attention to the lifestyle of women in early middle age, emphasized by T. V. Nestorova and colleagues, which primarily includes the stress experienced by young women. It is hard to disagree with this, as it is precisely in the youth and early stages of adulthood that women acquire new statuses and social roles, studying, starting a career, creating their family, and, of course, giving birth to children. The authors note that it is during this age that the first signs of decreased physical activity are recorded, attributed to the emergence of certain responsibilities (professional/family). Alongside this, there is an involution of the endocrine, cardiovascular, nervous systems, and metabolism in the body. As a result, disruptions in sleep patterns, increased fatigue, memory deterioration, elevated stress levels, and the onset of excess weight are observed [35].

During the study of this issue, we noticed a certain trend of gradual weight gain in women of early middle age. In particular, the research by Y. Tomilina indicates that one-third of the examined women have excess body weight, which on average increases by 2-5 kg every five years of life. Moreover, they complained of pain in the neck, back, joints, and demonstrated a low level of physical performance [55].

We share the opinion of A. I. Bodnar, who notes that women should show interest in physical and recreational activities as early as possible, at the age of 18-25. At this age, the leading motives for engaging in fitness are: 1) figure/posture correction; 2) improvement or prevention of health issues; 3) expanding knowledge about proper nutrition and specific exercises for figure correction [11].

Therefore, considering the universal features of women's bodies and taking into account the pros and cons of existing technologies, the presence of a certain algorithm can be traced in the development of a fitness program:

1. Motivational advantages and individual characteristics of women in early middle age are determined.

2. Differences in their individual morphological indicators from normative ones are identified.

3. Effective means for correcting identified deviations are selected.

4. A rational exercise regimen and optimal parameters of training actions are determined.

5. Recommendations are provided for optimizing the diet and hydration regime.

6. Continuous individual monitoring of the training process according to the program is carried out.

3. Motivational priorities for strength training in mature women

At the declarative stage of the pedagogical experiment, we conducted an anonymous survey of female higher education students aged 25 to 35 to determine the interest, motivations, and attitudes of contemporary youth towards fitness, as well as to identify possible reasons for excess body weight in mature women. A total of 138 respondents who were not engaged in any professional sports activity participated in the survey [15].

The survey was conducted using the free online service Google Forms, with the relevant invitation distributed on the social networks Facebook and Instagram.

Analyzing the anonymous responses to 22 questions formulated for this survey, we drew several conclusions at the declarative stage of the pedagogical experiment. These conclusions helped us formulate the objectives of our research and plan a strength fitness program for correcting the body weight of mature women.

First and foremost, it was established (Figure 1) that 21.7% of respondents currently engage in fitness centers (though only 13% do so regularly), 49.3% exercise independently, and nearly 21.7% of mature women plan to start fitness training or enroll in a gym. Among those surveyed, only 7.2% of mature women do not engage in sports at all and have no plans to do so in the future [15]. This, in our opinion, indicates a generally positive trend of interest among contemporary mature women in engaging in any form of physical activity, despite the busyness of their daily schedules.

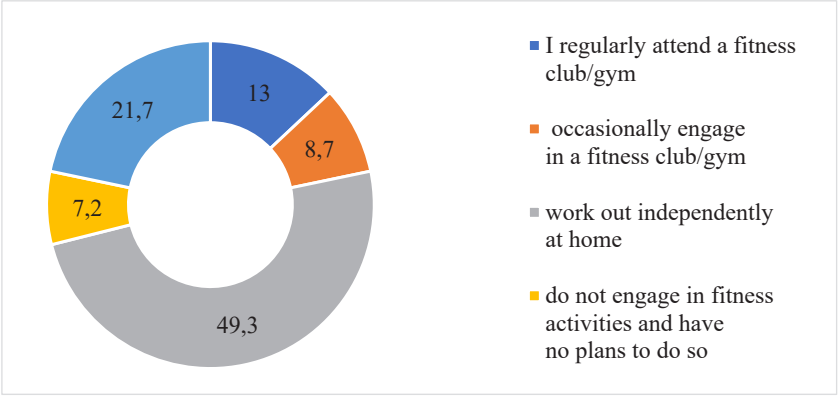

Figure 1. Attitudes of mature women towards fitness or any physical activity (n=138), %

The survey analysis revealed that the majority of women prefer cardio exercises (41.3%) and strength training (32.6%). Less than 1% engaged in other forms of physical activity, including swimming, dancing, volleyball, stretching, yoga, horseback riding, karate, and walking (Figure 2).

Analyzing the physical activity of the respondents throughout the day based on their responses, we found that the majority have a

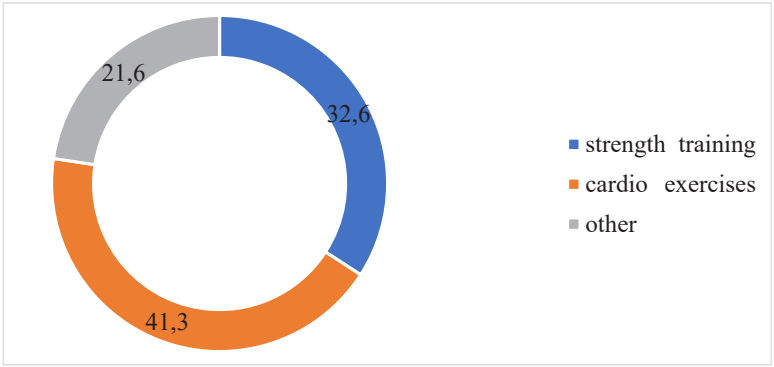

Figure 2. Activities of mature women with different types of physical activity (n=138), %

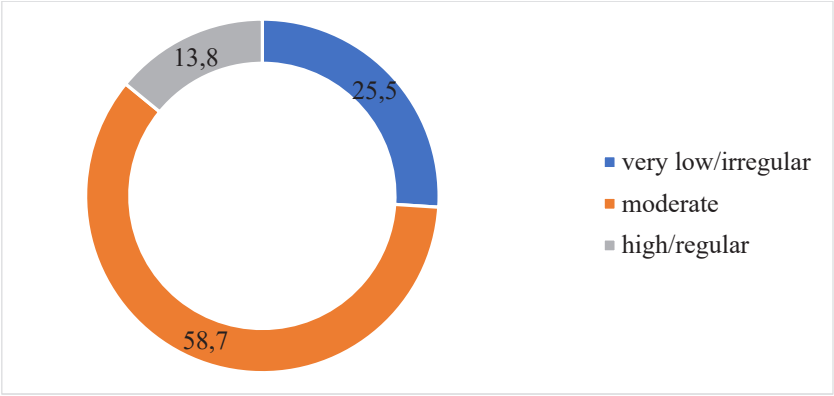

Figure 3. Intensity of physical activity in mature women throughout the day (n=138), %

moderate (58.7%) and high (13.8%) level of activity (combined 72.5%) (Figure 3). The women actively combine various types of activities: 31.2%, in addition to studying at higher education institutions, work in various fields (barista, waiter, bartender, administrator, entrepreneur, pharmacist, recruiter, dropshipper, makeup artist, cashier, promoter, photographer).

It was interesting to identify the reasons and motivations for engaging in sports among contemporary youth. The collected data showed that 33.3% of respondents indicated that they engage in fitness to maintain their athletic shape, while 31.9% of mature women attempt to use fitness to adjust their body weight: either reduce excess weight or improve physique and posture. Additionally, 19.6% aim to enhance their psychoemotional state and mental resilience (Figure 4).

In response to the question "Have you ever engaged in strength training?" slightly more than half of mature women (52.1%) provided a positive answer: 39.1% had engaged in the past, and 13% are currently engaged (shaping, body pump, exercises with free weights, dumbbells, barbells). However, it is unfortunately noted that the majority of respondents (53.6%) engaged in strength training without mastering the technique of performing strength exercises.

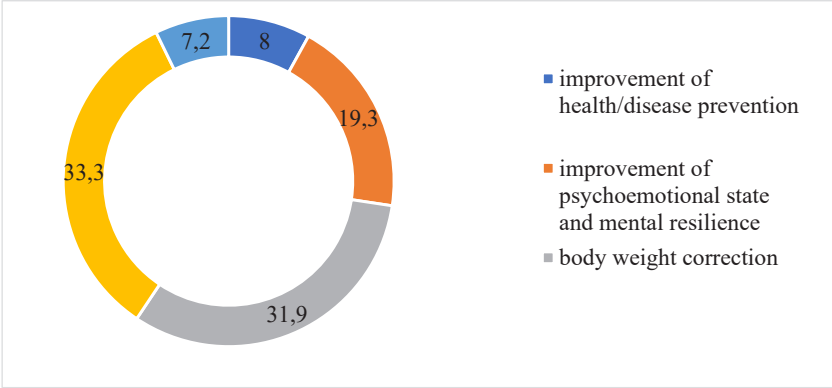

Figure 4. Motivations for engaging in fitness among mature women (n=138), %

In Figure 5, we illustrated the distribution of probable reasons for the occurrence of excess body weight in mature women. As seen, the leading cause (44.2%) is insufficient physical activity throughout the day; nearly equal proportions include overeating (23.2%), excessive consumption of fast carbs and fast food (22.5%), lack of normal sleep patterns (21.7%), and high stress levels (21.7%).

Through anonymous surveys, we also "collected anthropometric data from mature women, allowing us to calculate their BMI, analyze the obtained indicators, and identify factors influencing the excess body weight of a specific group of respondents".

As a result of BMI calculations, five groups of mature women were identified: 1) with a significant deficit in body weight (2.2%); 2) with insufficient body weight (23.9%); 3) with normal body weight (65.2%); 4) with excess body weight (8.0%); 5) respondents with first-degree obesity (0.7%).

Through a detailed analysis of the responses from mature women, a connection between the body weight of the women and their lifestyle, physical activity, nutrition, sleep, stress levels, harmful habits, etc., was established. It was found that there is a close relationship between factors such as nutrition, sleep, daily physical activity, and the overall physical condition of mature women.

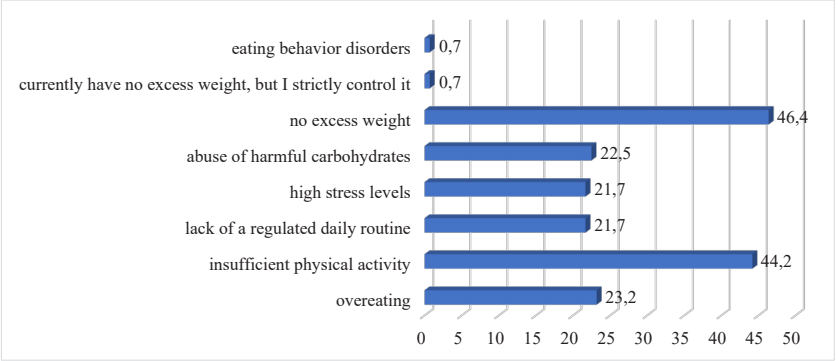

Figure 5. Probable reasons for the occurrence of excess body weight in mature women (n=138), %

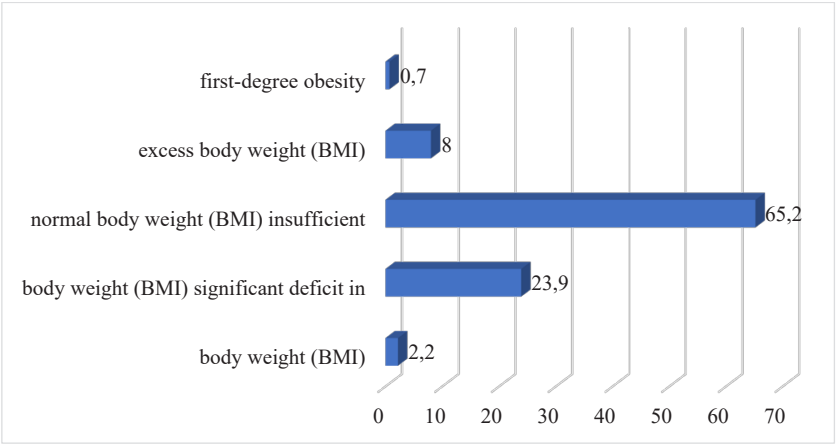

Figure 6. Distribution of respondents by body mass index (BMI) (n=138), %

Initially, we examined the responses of the respondents regarding the nature and regularity of their nutrition and noticed a certain dependency: 67% of mature women with a significant deficit in body weight (BMI less than 16) indicated that they often do not eat enough, while 80% of women with normal weight predominantly have a normal diet. Half of

the mature women with excess weight eat normally, but 36% of them still overeat.

Another influencing factor on the body weight of mature women was their physical activity throughout the day, and sleep was found to be essential for human health. The obtained results indicate the following polarity: respondents with a significant deficit in body weight (67%) and, conversely, those with first-degree obesity (100%), experience poor and unstable sleep, although the duration of sleep in all participant groups corresponds to sanitary norms (5-6 and 7-8 hours).

Therefore, the survey conducted with 138 mature women at the declarative stage of our pedagogical experiment allowed us to identify the main motivations for engaging in sports, determine the presence and probable reasons for excess body weight in women, analyze their lifestyle, quality and duration of sleep, stress levels, daily physical activity, regularity of nutrition, and more. After analyzing the survey results, we have decided to focus our attention on developing our own fitness program based on modern domestic programs for body weight correction in mature women using strength training.

4. Characterization of the physical condition of participants in the strength fitness program for body weight correction

The next stage of our research was the organization and implementation of the formative stage of the pedagogical experiment, during which we determined the initial anthropometric indicators of mature women before the start of training. We calculated indices such as body mass index (BMI), waist-to-height ratio (WHTR), waist-to-hip ratio (WHR), identified body type, and conducted individual interviews with each participant in the program.

The experiment involved 30 mature women with an average age of 28.8 years. All respondents are currently clients of the "Titan" fitness center and the "Status" fitness club in Chernivtsi, where our experiment was conducted with the permission of the management and the participants themselves.

To implement the task, we developed an "Individual Card" for participants in the strength fitness program for body weight correction, where we recorded the initial data of mature women before the start of

training. A sample of such a card is presented in the appendices to the master's thesis.

The individual card covers 10 points, including basic information about mature women: name, age, anthropometric data (height, body weight, waist, abdomen, hip, chest, buttocks, and arm circumferences), calculations of body mass index, waist-to-height ratio index, waist-to-hip ratio index, determination of body type, medical history (chronic/previous illnesses, injuries, surgeries, harmful habits, heredity), conditions of education/work and household. Additionally, specific notes could be made in the "Special Notes" section after the interview with each participant if any were identified.

All measurements of mature women were taken during the first training session, following general measurement procedure requirements. The obtained results were immediately recorded in the individual cards of the participants directly at the fitness center. The data from the individual cards were entered into Excel tables for further statistical processing of empirical data.

Let's analyze in more detail the body weight of participants in the fitness program before the start of strength training.

As a result of the analysis, it was found that 53% of participants in the fitness program belong to the group of young women with normal body weight (Figure 7), with BMI indices ranging from 18.6 to 24.2. However, some variations in body weight disorders in mature women were identified: 1) 27% of participants had body weight slightly exceeding the norm by an average of 1.7 kg; 2) 10% of mature women had excess body weight with signs of first-degree obesity; 3) only one participant in the program showed third-degree obesity (3%); 4) two participants (7%) had insufficient body weight with BMI of 16.3 and 18.5.

To determine the nature of fat tissue distribution in our study, we used the Waist-to-Height Ratio (WHTR) and Waist-to-Hip Ratio (WHR) as markers of the risk of developing metabolic disorders.

During the analysis of the primary data of the participants, it was established that according to the Waist-to-Height Ratio, 40% of mature women had normal body weight, while 36% had insufficient body weight (see Figure 8). Excess body weight was observed in 22% of the participants, and obesity was present in only 2% of the program participants.

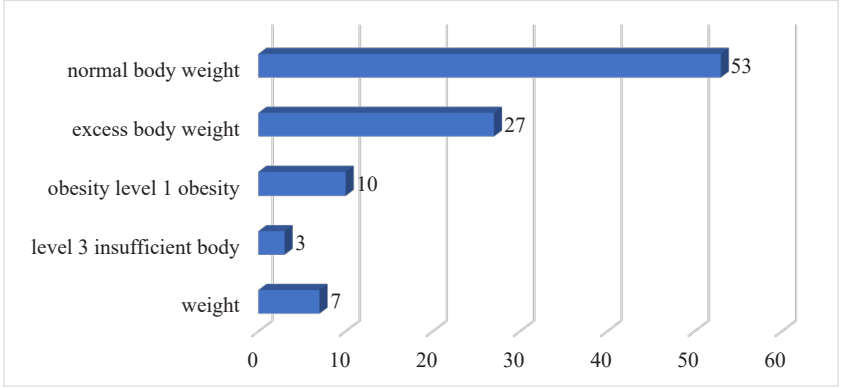

Figure 7. BMI indicators of mature women at the beginning of the study (n=30), %

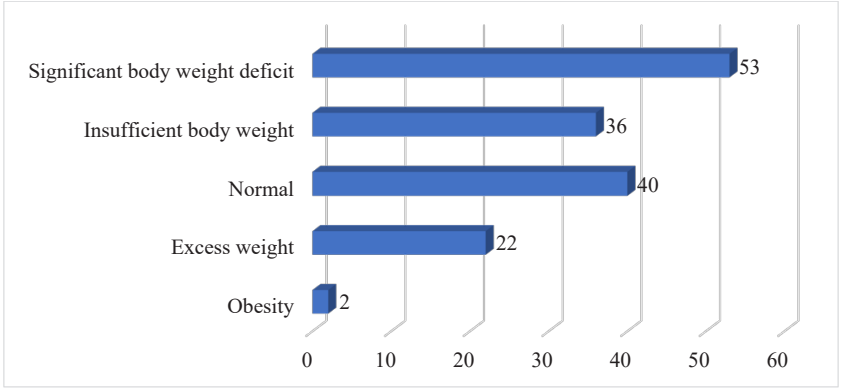

Figure 8. WHTR (Waist-to-Height Ratio) indicators of mature women at the beginning of the study (n=30), %

Analyzing the Waist-to-Hip Ratio (WHR) of mature women participating in the fitness program, we observed that only one participant had a ratio higher than 0.85 (0.9), indicating obesity.

Based on this data, a preliminary conclusion can be drawn that the majority of mature women – 76%, can engage in a standard strength fitness program for body weight correction, expecting body shape adjustment,

increased muscle mass, reduced fat mass, and overall health improvement. For participants with excess body weight and obesity, we propose additional aerobic exercises alongside the main strength fitness program, increased physical activity throughout the day, lifestyle changes, sleep regimen adjustment, and dietary modifications.

The initial measurements of mature women at the beginning of the study allowed us, in addition to indexing (determining BMI, WHTR, and WHR), to identify the body types of the experiment participants, which, in turn, will influence the overall planning of the fitness program.

In contemporary literature, women's body types are classified differently. As noted by authors Spivak M. L., Kovtun V. Ye., and Bych G. V., body types are distinguished based on external resemblance to Latin letters (A, V, H, O, X), fruits or vegetables (pear, apple, broccoli, string bean), geometric shapes (triangle, rectangle, etc.) [48].

In our research, we chose a popular classification based on the resemblance to Latin letters and analyzed the body types of the program participants. It's worth noting that all respondents were categorized into three main groups based on figure types: X type, H type, and A type.

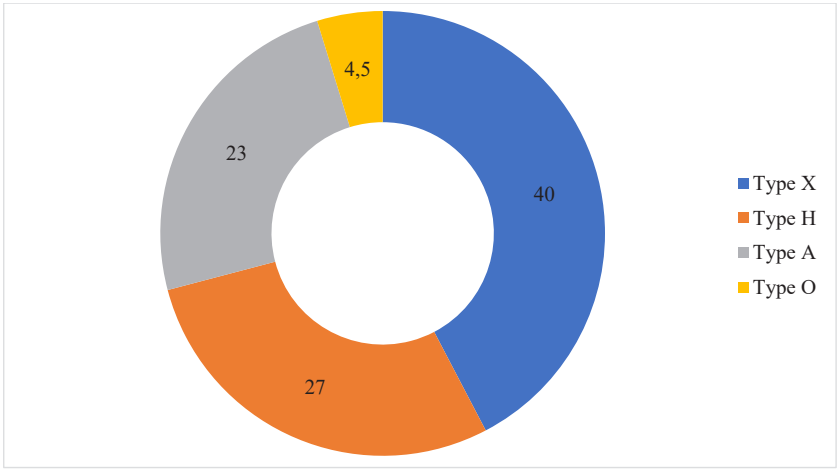

Figure 9. Distribution of participants in the strength fitness program for body weight correction by body types (n=30), %

As seen in Figure 9, the majority consists of mature women with the body type X, accounting for 40%. They have a well-defined waist with highlighted bust and hips against a narrow waist. Most participants have slight fat deposits in the hip, thigh, and lower abdomen area. When correcting the figure for this type through strength fitness, we aim to maintain the harmony of the natural body structure of mature women. Participants are equally distributed among body types H and A, accounting for 27% and 23%, respectively. Women with the H body type have proportions of chest, waist, and hips that are relatively similar, and they find it challenging to gain weight. Characteristics of their body structure include a small bust, slightly fuller legs, an almost absent waist, and shoulders and hips of nearly the same width. For participants with body type A, fat accumulation is observed in the hips and buttocks. Their shoulders and chest volumes are relatively small: narrow shoulders, wide hips, and legs fuller than required by body proportions. In the training of participants with this body type, we plan to focus on working with the lower part of the body.

No participants in our study had body type T, and only three program participants with excess body weight and signs of obesity had body type O (10%).

Thus, by analyzing the body types of participants in the fitness program, it becomes easier to plan the content of strength training programs.

It is also worth noting that, in addition to anthropometric indicators, at this stage of our study, participants in the experiment provided information about the presence of diseases (chronic or past), injuries, dislocations, or stretches, surgeries, features of heredity, as well as harmful habits. Additional data were entered into the individual card of participants about the conditions and nature of their work or study, features of daily life, nutrition, and the state of physical fitness.

The survey results of the participants before the start of participation in the fitness program regarding the nature and conditions of their work and study are presented in Figure 10.

It turned out that the majority of participants (73%) lead a sedentary lifestyle: during studies at higher education institutions, at home in front of a computer, performing certain tasks, or learning in an online format. Among those surveyed were also girls who work simultaneously with their studies, and the nature of their work turned out to be mostly sedentary:

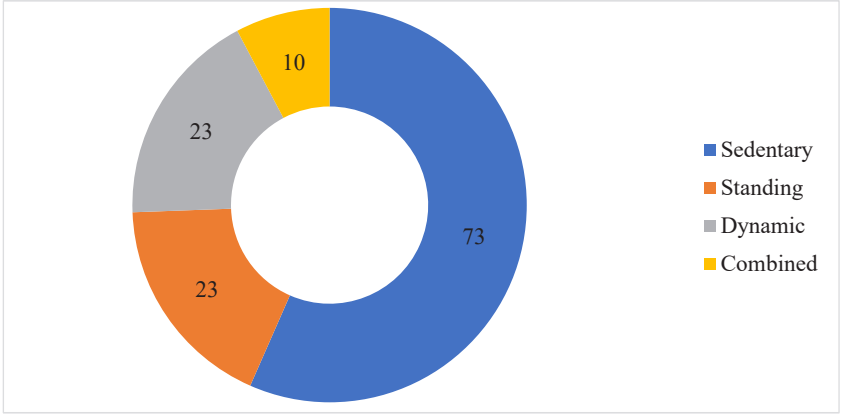

Figure 10. Distribution of participants in the strength fitness program for body weight correction by learning style (n=30), %

work in the IT sphere, programmer, web designer, etc. In the rest of mature women (23%), there was a standing nature of work (for example, bartender, barista, etc.) with minimal physical activity throughout the day.

The expected results were obtained from the survey of mature women regarding the regularity and specifics of their eating habits (see Figure 11). The majority of program participants, 63%, indicated that they eat irregularly (2 times a day) and unbalanced: they receive most of the calories in the second half of the day after work or study, more often before bedtime, and mostly it is unhealthy food with an elevated content of fats and carbohydrates. 37% of respondents try to eat regularly – 3-4 times a day, but they cannot consume exclusively healthy food.

Therefore, at the formative stage of our pedagogical experiment, we considered it necessary, first of all, to assess and take into account the main initial anthropometric indicators of mature women, their physical condition, health, regularity, and quality of nutrition in order to optimally design a body weight correction program using strength fitness. Knowing the body type of the participants and certain features of weight gain, it is possible to correct figure flaws and create a corresponding set of physical exercises to influence changes in problematic areas of the figure. In addition, to achieve positive results in body weight correction for mature women, it is

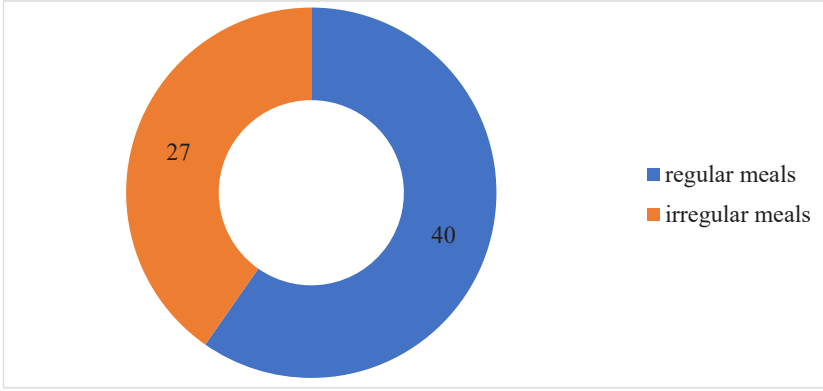

Figure 11. Distribution of participants in the strength fitness program for body weight correction by the regularity of nutrition (n=30), %

recommended to optimize the physical activity regime, its duration, make an optimal choice of necessary strength exercises in combination with proper and rational nutrition.

5. Conclusions

1. During our research, we analyzed the works of leading scientists and specialized scientific-methodical literature on modern systems and fitness technologies in the physical education and health industry. Three main categories of the most common fitness programs were considered, including programs for aerobic endurance, strength endurance, figure correction, and programs based on types of strength-focused physical activity. Special attention was given to strength fitness programs. We established the optimal frequency and intensity level of strength training, described parameters to consider when dosing strength loads for women, and discussed popular types of exercises recommended as the primary means of strength training. The study also involved analyzing the process of planning strength fitness programs for body weight correction in mature women. The final stage of studying scientific-methodical and specialized literature on the research topic was the analysis of classifications of strength exercises.

2. In the exploratory stage of the pedagogical experiment aimed at determining the motives of modern youth for engaging in fitness and

identifying the reasons for the appearance of excess body weight in mature women, an anonymous survey of 138 respondents from various higher education institutions was conducted. A generally positive trend of interest in sports among modern youth was noted. The main reasons and motives for engaging in sports were also clarified: 1) maintaining athletic shape (33.3%); 2) body weight correction: reducing excess weight or improving body shape and posture (31.9%); 3) improving emotional and psychological well-being and mental resilience (19.6%). The survey analyzed probable causes of excess body weight in mature women, including insufficient physical activity during the day (44.2%), overeating (23.2%), excessive consumption of fast carbohydrates and fast food (22.5%), lack of normal sleep (21.7%), and high stress levels (21.7%).

3. During the formative stage of the pedagogical experiment, initial anthropometric indicators of 30 mature women were collected and analyzed before starting strength fitness training for body weight correction. Indices such as IMT, WHTR, WHR were examined, body types were determined, and individual interviews were conducted with participants. The analysis of initial data revealed that 53% of mature women, based on the IMT index, belong to the group of young women with normal body weight. However, certain types of body weight disorders were identified: excessive body weight (27%), obesity grade 1 (10%), obesity grade 3 (3%), insufficient body weight (7%). In addition to anthropometric indicators, information about participants' health conditions (chronic or past illnesses), injuries, dislocations or sprains, surgeries, hereditary traits, and harmful habits was collected. The study also analyzed the nature and conditions of their work and education, the regularity and features of nutrition, sleep, etc.

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