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FITNESS PROGRAMS FEATURES ACCORDING TO THE BODY TYPES OF HIGH SCHOOL GIRLS

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Abstracts

The Actuality of the Research. Fitness is one of the most innovative approaches in the establishment of the physical training programme, which is good for shaping the body and body mass. Fitness contributes to the harmonization of physical development and improves the functional statement of body's system. In the contemporary scientific researches it is expected that theoretical-methodological basis of fitness integration in the school system of physical education will contribute to increasing of physical preparedness level and motivation to practice sports among the teenagers, their physical development, health promotion, socialization and self-determination. **The Methods of the Research.** The analysis of academic papers, questionnaire, testing, medical examination of students, pedagogical experiment; determination of the level of physical development and physical preparedness; mathematical statistics method. The study was conducted on the basis of the Lutsk Middle School of General Education I–III levels № 18, Lutsk Middle School of General Education I–III levels № 25, Lutsk Jurisprudential Lyceum of Heavy Physical Training. 120 high school girls were involved in the study. **The Results of the Research.** Different physical types were taken into account by developing fitness programs (asthenic, hypersthenic, normosthenic). The results of the study show that 22 % of high school girls are asthenic body type, 19 % are hypersthenic, 59 % of high school girls are normosthenic body type. The strength exercises to increase the body mass and improve the muscle tone are recommended for girls of asthenic body type with slight stature, above average height, narrow shoulders, thin limbs and underweight. The high school girls of hypersthenic body type are with a massive body, average height, broad shoulders, short limbs and they are overweight. Physical exercises for them were focused on decrease in weight of a body, the reduction of body types (shoulders, thorax, stomach, pelvis, hips), the reduction of adipose tissue. The high school girls of normosthenic body type have relatively proportional body. That is why the physical activities are aimed at improvement of muscle tone, slowdown of body mass and reduction of the pelvis. **Conclusions.** The results of the study will be applied to the establishment of the programme for the purpose of increasing the physical activity and improvement of functional and physical preparedness for high school girls.

Key words: high school girls, fitness programs, body types, motivation, health.

Даніло Контеро, Людмила Ващук. Особливості застосування фітнес-програм для різних типів будови тіла старшокласниць. Актуальність. Одним із новітніх напрямів у побудові занять фізичними вправами є фітнес, який ефективно впливає на корекцію будови тіла, маси тіла, сприяє гармонізації фізичного розвитку, поліпшенню функціонального стану систем організму. У сучасних наукових дослідженнях припускається, що теоретико-методологічне обґрунтування інтеграції фітнесу в систему шкільної фізкультурної освіти сприятиме підвищенню рівня фізичної підготовленості та мотивації до занять фізичними вправами підлітків, їхньому фізичному розвитку, зміцненню здоров'я, соціалізації й самовизначенню. **Методи дослідження** – аналіз наукових праць, анкетування, тестування, медичне обстеження учнів, педагогічний експеримент; визначення рівня фізичного розвитку, підготовленості; методи математичної статистики. Дослідження проведено на базі ЗОШ І–ІІІ ст. № 18, № 25, правознавчого ліцею з посиленою фізичною підготовкою міста Луцька, задіяно 120 старшокласниць. **Результати роботи.** Розробляючи фітнес-програми, враховували різні тип будови тіла (астенічний, гіперстенічний, нормостенічний). За результатами досліджень виявлено, що 22 % старшокласниць мають астенічну будову тіла, 19 % – гіперстенічну та 59 % – нормостенічну. Для дівчат астенічної будови тіла, яким властиві худорлявість, вищий за середній зріст, вузькі плечі, тонкі кінцівки, дефіцит маси тіла, рекомендували вправи силової спрямованості для збільшення маси тіла, окружностей частин тіла, покращення показників тонуусу м'язів.

Старшокласниці гіперстенічної будови тіла переважно мали масивне тіло, середній зріст, об'ємні плечі, укорочені кінцівки, надлишкову масу тіла. Тому виконання фізичних вправ спрямовували на зниження маси тіла, зменшення окружностей частин тіла (плеча, грудей, живота, таза, стегна), зменшення жирового компонента. Представниці нормостенічного типу статури мають відносно пропорційну будову тіла. Тому фізичні навантаження спрямовували на поліпшення тону м'язів, зниження темпів приросту маси тіла та зменшення окружності таза. **Висновки.** Отримані результати дослідження буде застосовано для розробки програми підвищення рівня фізичної активності дівчат старшого шкільного віку, поліпшення їхньої функціональної й фізичної підготовленості.

Ключові слова: старшокласниці, фітнес-програми, типи будови тіла, мотивація, здоров'я.

Данило Конт'єро, Людмила Ващук. Особенности применения фитнес-программ для различных типов строения тела старшеклассниц. Актуальность. Одним из новейших направлений в построении занятий физическими упражнениями является фитнес, который эффективно влияет на коррекцию телосложения, массы тела, способствует гармонизации физического развития, улучшению функционального состояния систем организма. В современных научных исследованиях предполагается, что теоретико-методологическое обоснование интеграции фитнеса в систему школьного физкультурного образования будет способствовать повышению уровня физической подготовленности и мотивации к занятиям физическими упражнениями подростков, их физическому развитию, укреплению здоровья, социализации и самоопределению. **Методы исследования** – анализ научных работ, анкетирование, тестирование, медицинское обследование учащихся, педагогический эксперимент; определение уровня физического развития, подготовленности; методы математической статистики. Исследование проведено на базе ООШ I–III ст. №№ 18; 25, правоведческого лицея с усиленной физической подготовкой города Луцк, задействовано 120 старшеклассниц. **Результаты работы.** Разрабатывая фитнес-программы, учитывали различные типы телосложения (астенический, гиперстенический, нормостенический). По результатам исследований выявлено, что 22 % старшеклассниц имеют астеническое телосложение, 19 % – гиперстеническое и 59 % – нормостеническое. Для девушек астенического телосложения, обладающих худобой, выше среднего ростом, узкими плечами, тонкими конечностями, дефицитом массы тела, рекомендовали упражнения силовой направленности для увеличения массы тела, окружностей частей тела, улучшение показателей тонуса мышц. Старшеклассницы гиперстенического телосложения преимущественно имели массивное тело, средний рост, объемные плечи, укороченные конечности, избыточную массу тела. Поэтому выполнение физических упражнений направляли на снижение массы тела, уменьшение окружностей частей тела (плеча, груди, живота, таза, бедра), уменьшение жирового компонента. Представительницы нормостенического типа телосложения имеют относительно пропорциональное строение тела. Поэтому физические нагрузки направляли на улучшение тонуса мышц, снижение темпов прироста массы тела и уменьшение окружности таза. **Выводы.** Полученные результаты исследования будут применяться для разработки программы повышения уровня физической активности девушек старшего школьного возраста, улучшения их функциональной и физической подготовленности.

Ключевые слова: старшеклассницы, фитнес-программы, типы телосложения, мотивация, здоровье.

Introduction. Health-related orientation of physical culture deals with the selection of the appropriate means, methods, forms of physical education and efficient physical exercises according to the students' physical condition [2; 4; 9]. Various health and fitness technologies are used, which involve the use of physical education for recreational purposes. Different fitness programs, which are the main content of both independent and educational activities, are the practical manifestation of the above-mentioned technologies in physical education [10; 13].

Covering all forms of motor activity, fitness meets the needs of different social and age groups due to the variety of fitness programs, their accessibility and emotional disposition [1; 3; 10]. The results of the research indicate that fitness classes are based on a fitness program, characterized by a set of specially selected physical exercises. The aforesaid exercises are aimed at complex or selective action on body systems or individual body parts, depending on morphs of human functional capabilities.

It is studied that fitness technologies and programs are distinguished in the following aspects: aerobic programs, strength programs, mixed format programs, «Body & Mind» (smart body) programs, dance programs, programs using martial arts. The classification of fitness programs is based on: one type of physical activity; a combination of several types of motor activity; a combination of one or more types of physical activity and various factors of a healthy way of life. The choice of fitness programs is carried out by Sports Engineering methods. These programs allow us to combine different types of physical activity in one lesson (for example, aerobics and hardening or bodybuilding and massage) [8; 11; 12; 14].

The Aim of the Research is to experimentally test the effectiveness of fitness programs for different body types of high school girls.

Material and Organization of the Research consisted of the analysis of scientific papers, questionnaires, testing; determination of the level of physical development of high school girls; choice of training strategy (goals and main tasks); determining the direction of fitness programs; determination of rational volumes of motor activity, parameters and modes of physical activity, duration and nature of rest; correction of fitness programs in accordance with the results.

The study was conducted during 2018–2019. 120 girls aged 16–17, high school girls from secondary schools № 18, 25 of Lutsk, participated in the research. Schools were chosen randomly, without taking into account any criteria. Participation in the study was voluntary and did not involve any form of satisfaction.

We studied physical development in terms of body length and body weight, the circumference of body parts, the thickness of skin and fat folds, the estimated indices. The method of screening-assessment of deviations in the physical development of high school girls according to the Kettle index is used. The data obtained during the study were processed using the methods of mathematical statistics. The following indicators were used for the characteristics: standard deviation; standard error of the mean value. Given the fact that the measurement was performed on a scale of proportions, the statistical significance of the differences was determined on the basis of parametric criteria (Student's t-test).

Research Results. Fitness programs, based on health-improving gymnastics, were used taking into account age, health, level of physical development, and motivational interests of high school girls. Research has shown that 22 % of high school girls have an asthenic body structure, 19 % – hypersthenic and 59 % – normosthenic.

It was determined that strength exercises, aimed at weight gain, body parts' (shoulder, chest, pelvis, thighs) growth, and muscle tone improvement, were recommended for girls with asthenic body structure, the main features of which are thinness, average height, narrow shoulders, thin limbs, and body weight deficit. The fitness program for girls in this group is set to strengthening the tone of the main muscle groups.

High school girls with a hypersthenic body structure mostly had a massive body, medium height, bulky shoulders, shortened limbs, and were overweight. Therefore, exercise was aimed at weight loss, reducing the fat component.

Representatives of the normosthenic body type have a relatively proportional body structure. From this perspective, exercise was targeted at improving muscle tone, reducing body weight gain and reducing pelvic circumference. Girls of this body type also need to focus on the lower body.

We developed a loading dose, taking into account the physical condition peculiarities of girls belonging to different groups (table 1).

Table 1

Dosage Loads for Girls of Different Body Structure

Physique	The Dimension of the Load (Maximum Repetitions), <i>times</i>	Number of Sets, <i>times</i>	The Duration of Rest Between Series, <i>min</i>	Temp of Acting
Asthenic	8–12	5–6	1,5–3,0	slow, medium
Hypersthenic	15–25	3–4	0,63–1,0	fast
Normosthenic	8–12	4–5	1,0–2,0	average

The technique was implemented in three stages. At the first stage (involving, 5 weeks) high school girls got acquainted with the fitness program, studied the procedure of the offered physical exercises. The content of the classes was focused on the gradual increase of aerobic and strength capabilities of girls. Performing physical exercises was aimed at students' interest in physical activity, creating an optimistic mood. At the second stage (main, 24 weeks) we conducted regular physical exercises in accordance with the developed fitness program. The main objectives of that stage were the development of physical qualities, increasing the body's defenses and resistance to adverse environmental factors. The third stage (supportive, 9 weeks) was to continue regular fitness classes, maintaining the achieved level of body functioning, detailed instruction on independent training.

Four main components were identified before the fitness program planning, namely: mode and type of training; number of classes per week; intensity and duration of each lesson; expected result taking into account motivation.

The technique of individual fitness programs planning for independent classes of high school girls involved the implementation of successive actions (fig. 1).

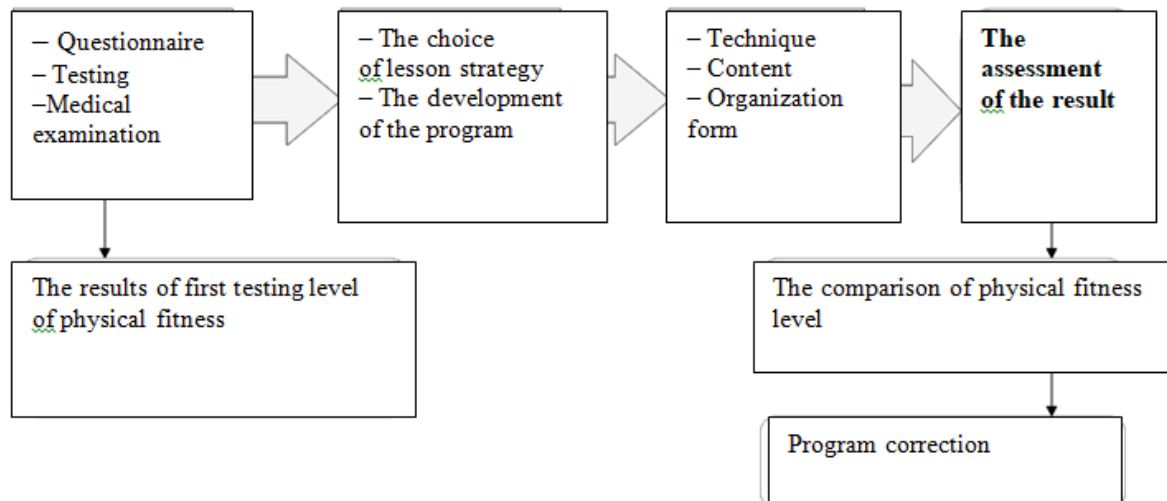


Fig. 1. The Overall Structure of the Fitness Program Creation

In order to increase the muscle strength of girls in the first group, it is recommended to perform athletic exercises in 5–6 sets. Each exercise is repeated 8–12 times, the duration of rest between sets – 1,5–3,0 minutes. Exercises are performed at a slow and medium pace. The method of strength development for the representatives of the second group differs in some ways: the number of sets decreases to 3–4 times, and the number of repetitions increases to 15–25 times. Exercises are recommended to be performed at a fast pace with a duration of intervals between sets – 40–60 s (fat reduction mode). Girls of the third group are recommended to perform exercises in 4–5 sets 8–12 times and the duration of rest – 1,0–2,0 minutes. The pace is medium.

In the control and experimental groups, testing of the physical development of the girls was performed. The results showed that the initial indicators of physical condition among the participants of the control and experimental groups probably do not differ ($P < 0,05$). The effectiveness of the developed recommendations was determined by comparing the initial and final indicators of physical development and interest in physical education of high school students. Conducting an educational experiment allowed to obtain data on the consequences of the experimental technique.

Discussion. In the following scientific works [4; 5; 6; 8] it was proved that one of the most specific features of human physical development is body structure. Deviation of body structure from optimal values negatively affects both the physical and mental health of young people [4; 7; 9; 11]. Therefore, while creating fitness programs we took into account the body structure type (asthenic, hypersthenic, normosthenic). We determined that the physique type (set of proportions and specific structure of body parts, as well as features of tissue: muscle, bone and fat) depends on how person gains weight. So, knowing the type of physique and features of weight gain, it is possible to improve the body and make an individual set of exercises (strengthening whether the muscles of the shoulder girdle, chest, abdomen, or improving the shape of the buttocks).

In modern scientific studies [2; 5; 12] it is assumed that the theoretical and methodological justification of the integration of fitness into the system of school physical education will increase the level of physical fitness and motivation to exercise adolescents, their physical development, health, socialization and self-determination. One of the modern directions in the physical exercises is fitness, which affects the improvement of body structure, body weight, contributes to the harmonization of physical development, making the functional state of body systems better. It is known that the harmony of body proportions is one of the criteria for assessing human health [8]. Taking into account the individual characteristics of the body structure of high school girls, the optimal choice of training exercises in combination with proper nutrition are the main factors for achieving harmonious body proportions.

Conclusions and Further Research Prospects. The results of the research revealed that fitness classes are based on a fitness program, characterized by a set of specially selected physical exercises. The above-mentioned exercises are aimed at complex or selective action on body systems or individual body parts, depending on human abilities. Fitness programs are grouped according to the direction, types of physical activity, and the impact on the human body. For the first time ever, differentiated fitness programs of strength

orientation were developed for the motivation and body type of high school girls for the implementation of extracurricular activities in secondary schools.

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