



Using Pilates program for excessive college student females extra bodily training

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ABSTRACT:

This study aims to update the "Pilates" curriculum for female students between the ages of 17 and 19 and experimentally test it in terms of fitness, other features, and body function points. Materials and procedures The research was carried out using a pedagogical test that was administered at the University of Vietnam (VNU) during the 2019–2020 academic year. 30 female students between the ages of 17 and 19 are the study's subjects. As the author develops the program «Culture Physical and Medical Systems» Pilates for Girls, 17–19 years old, it is held additional sessions of "Pilates" instruction in the afternoon in addition to the required school hours for physical training, duration, two sessions per week for 60 minutes. This program is designed for one hundred and forty-four hours of instruction, including 12 hours of theory and ninety-six hours of practical work. Instruction in self-study lasts for 48 hours (once a week for 1 hour). Female students are performing fundamental "Pilates" movements on mats in other sessions.

After two months of extra "Pilate" training, we designed sophisticated exercises employing the "Pilates ball" and "Pilates rings," isostatic, to be used in place of the fundamental exercises. The physical condition of the female students was evaluated before and after the exam using an expedited approach based on the evaluation of anthropometric and physiological markers. Tests for hypoxic breath-holding are conducted. Tests of locomotion were used to assess the fitness of female pupils.

Result. To increase the physical health, functional index level, and physical fitness of female AGU students between the ages of 17 and 19, the extra exercise program "Pilates" was created and evaluated. Has a strongly favorable effect on these indicators' values. After the experiment, physical health scores and functional markers significantly improved. Conclusion. To increase the physical health and functional index levels of female students at VNU who are 17 to 19 years old, as well as for related items.

Keywords: Pilates Physical Education, Physical health, Functional indicators, Female students, Physical fitness technologies

DOI Number: 10.14704/nq.2022.20.12.NQ77107

NeuroQuantology 2022; 20(12): 1287-1295

Introduction

Each piece of exercise equipment in the facility is modernized, and the instructions and desires are both presents (Andrieieva et al., 2020). The usage of exercise equipment called "Pilates" is one of the contemporary developments in medical technology. This is a course on the culture of physical fitness that has a significant impact on the nation and is beneficial to the student's mobility and ability to increase fitness, flexibility, strength, and endurance. (J. Pilates, 2007) According to D. Reyneke (1993), the "Pilates" apparatus has a positive impact on pupils' psycho-emotional wellbeing while also enhancing their physical attributes like strength and flexibility.



A review of the clinical and methodological literature demonstrates a current reduction in young kids' preference for traditional methods of planning and concluding in-school gymnastics training. Additionally, Cezar Kunierz et al. (2020) state that a lack of preference for motor preferences is one of the factors contributing to low motivation. The aspirations and bodybuilding's goals include enhancing young people's fitness, ignite passion for physical hobbies, gather knowledge about traditional body and sports activities, and cultivate good lifestyle habits (Görner, Reineke, 2020; Sawicki, 2018). (Nesterchuk et al., 2020). Additionally, these forms of exercise put a minimal strain on the cardiovascular system, making them safe for people of any physical fitness level (Dan, 2007). The accessible clinical papers no longer accurately reflect the complete spectrum of potential impacts of the prescribed sports on students' physical condition, despite the dated records of reading concerns connected to the "Pilates" exercise equipment comprehensive evaluation. There are no studies or works related to the introduction of "Pilates" in high school girls' physical education, nor are there any specific, useful guidelines for organizing, planning, and carrying out sports and leisure activities with women aged 17 to 19 in higher education using the "Pilates" apparatus. All of this helped us understand how our research on the methods and modernization of the "Pilates" gadget used in the context of extracurricular instruction for females ages 17 to 19 progressed. Purpose of the study, is to improve the women's aged 17–19, physical fitness and useful qualities level by modernizing and empirically testing the "Pilates" education program as a component of additional physical training.

Material & techniques

During the 2019–2020 academic year, VNU administered the pedagogical exam. There were 30 female participants, aged 17 to 19. When we created the program "Physical lifestyle and exercise equipment. gymnastics "Pilates" for female students aged 17 to 19," additional tutorials were conducted in the afternoon and outdoor required training hours twice a week for 60 minutes. Prior to and following the exam, the technical level utilization of the female students' physical fitness level was evaluated, mostly based on a subpar evaluation (Dao CT, 2020). Anthropometric and physiological markers include body mass (kg) and height (m), systolic blood pressure (mmHg), lung vital capacity (ml), hand strength (kg), heart rate at rest (beats per minute), and pulse recovery time after a typical load (20 quats in 30 seconds, min). The sum of the scores indicates a "high" level of girls' health (V), while scores between 14 and 16 indicate a "above average" level, 10 to 13 indicate a "average" level, 5 to 9 indicate a "below average" level, and scores below 4 indicate a "poor" level (I).

The [Dao CT, 2020] hypoxia breath maintenance tests were completed during the course of the present study. To quantify the frame energy potential of female students, the cardiovascular equipment reserve index was changed to the decisive: Robinson index, IRob = coronary cardiac charge: 100, relative units (Robinson, 1967). The strength of the finger muscle tissues of each finger (kg) is determined with the help of a dynamometer. To determine women's physical health (speed, patience, strength, flexibility, agility) before and after the test, and the control tests included in the tests European standards (PCFSN, 2011) were used, manage checks covered withinside the bodily health checks (Dao CT, 2019) have been used: « Running 30 m », (s); « Shuttle running 4x10 m (s) »; « Long jump (cm) »; « Runing 5-minute (m); « Bend from a standing position forward (cm) »; « Pull-up on a low crossbar from a prone position (times); « Hopping over a skipping rope, 1 minute (times) »; « Lifting the torso from the prone position, for 1 min (times); « Throwing a stuffed ball 1 kg, (cm); Right handgrip, kg; Left handgrip, kg.

The experimental program, designed for one hundred and forty-four hours of instruction, including 12 hours of theory and ninety-six hours of practical work. Self-study instruction is taught for 48



hours (once a week for 1 hour). In additional classes, female students are doing basic «Pilates» exercises on the mat.

Table 1. Curriculum for a "Pilates" fitness- and lifestyle-enhancing trial program for females aged 17 to 19.

Title	Theoretical classes	Self-tuition classes	Practical classes	Total amount (hours)
1 Introduction	2	2	2	4
2 Breathing techniques	2	2	4	6
3 Basic techniques of body positions	2	4	20	24
4 Basic movement techniques	2	4	20	24
5 Basic «Pilates» exercise techniques	2	34	48	82
6 Lessons of control	2	2	4	8
Total:	12	48	96	144

The girl has been participating in main "Pilates" athletic activities on mats (Pilates Matwork) without a device between September and October 2019 as part of extracurricular teaching. Primary athletic events have been completed using modest devices after months of instruction (fit balls, expanders, frame bars, and isotonic rings). Primary "Pilates" sports with minimal gadget usage alternated with sports without gadgets from November 2019 until the test's conclusion (May 2020). (four instructions have been held month-to-month for the use of small gadgets and four instructions without them). All sporting events have been finished with musical accompaniment. We employed a strict regimen of athletic activities using a TOGU Redondo-Ball, also known as a "Pilates ball," to implement the strategy that was developed with our help. This ball is gentle and smooth, with a diameter of 20–30 cm, allowing one to control the movement's suppleness and smoothness while paying attention to how the workout is progressing. Although working out without a ball is not the ideal technique to make learning more emotional, fascinating, and diverse, it does help you prevent postural problems. Strength sports events with the «Pilates ball» increase the muscle burden and the equipment stretches the ligaments with the help of the increased resistance of the deep stabilizing muscle tissues. The RedondoBall can be used as a device for rest and massage.

This study recommended strengthening the chest, belly, buttocks, and back muscles with an isotonic "Pilates ring" to improve stability and coordination for the upcoming round of sports activities.

The primary portion of the instruction employed experimental body sport activities. Data technology, in particular a computer for the display of video contents, has been extensively utilised when analyzing complexes. According to the ethical standards of the VNU-HCM Human Rights Commission in 2018, the finished paintings no longer violate students' rights or pose a health risk to them ([Dao CT., 2020]). Obtained parental consent for the behavior of female students aged 17-19 that the survey changed obtained in this study.

The Microsoft Excel and SPSS 20.0 software packages were used to compute the mean (M), minimum, maximum, standard deviation (SD), standard error (m), and confidence ratings. The study's statistical analysis.



Results

The use of the experimental technique «Pilates» in training female students had a tremendous impact on their physical body characteristics (Fig.). At the end of the test, the female range with «below mean» fitness level is reduced with 50% use support, the female range with «mean» fitness level is accelerated with the use support level. 42.7%, there were women with «above mean» qualifications and no women with «low» and «excessive» fitness levels.

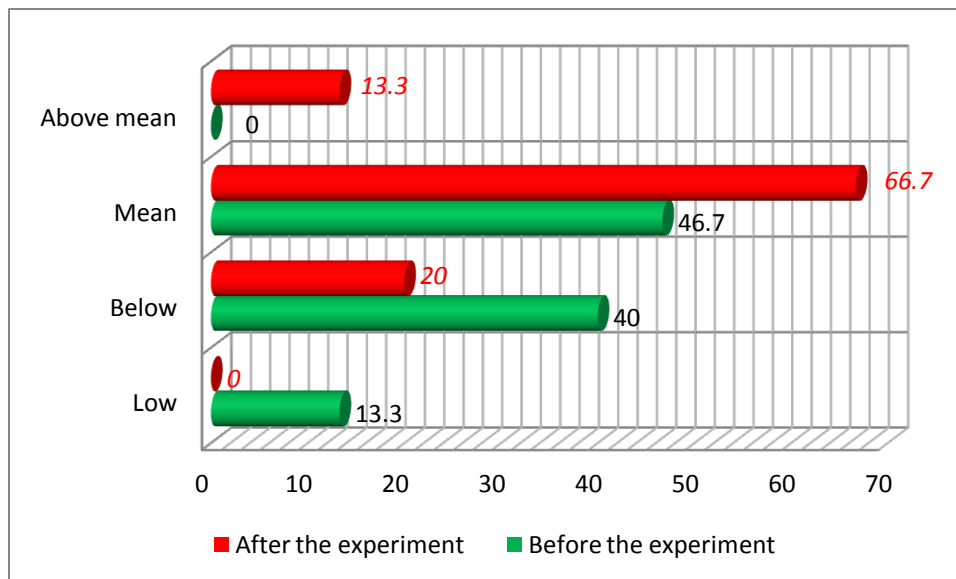


Figure 1: Shows the number of female students aged 17 to 19 who had varying levels of physical health before and after the trial (in %).

After the experiment, a comparison of cardiac structural failure and respiratory failure revealed statistically significant modifications in addition to the cardiac charge, the rim at rest, Strange's and Genche's check for signals (increasing capacity to exhale) (Table 2).

Table 2 shows the cardiovascular and respiratory activities index of female students aged 17 to 19 before and after the trial (N=30).

Indicator	Before experiment		After experiment		t	p	Indicator growth (%)
	M	SD	M	SD			
Heart rate at rest (bpm)	69.10	3.62	58.60	2.51	2.41	<0.05	16.25
Robinson index	86.22	3.80	70.14	3.22	2.14	<0.05	20.46
Stange's test (s)	42.02	2.96	58.64	3.41	2.68	<0.05	33.00
Genche's test (s)	34.03	2.42	46.04	2.75	2.36	<0.05	30.00

There were no girls left with a "low" degree of cardiovascular system activity at the end of the trial. The proportion of female students with a "medium" resting heart rate fell by 6.7%, whereas the proportion of female students with a "high" resting heart rate rose by 33.33% or 3.5 times.

Table 3. Before and after the trial, female students aged 17 to 19 had various levels of function in their respiratory and cardiovascular systems (%).

Functional state indicator for systems	Before the experiment n	After the experiment n
	% girls of the	% girls of the



		total number		total number	
Heart rate					
Low	8	26.7	0	0	
Mean	18	60.0	16	53.3	
High	4	13.3	14	46.7	
Stange's test (s)					
Low	8	26.6	0	0	
Mean	16	53.3	18	60.0	
High	6	20.0	12	40.0	
Genche's test (s)					
Low	10	33.4	0	0	
Mean	16	53.3	20	66.6	
High	4	13.0	10	33.4	

After the test, women in each hypoxia sample with a «low» stage of sign values could no longer be found. There are now more ladies with "mean" and "above mean" indicators than ever before (Table 3). Following the assessment, girls' physical health indicators across all performance tests showed statistically significant changes (Table 4). The test "pull-ups on a low crossbar from a prone posture" and the test "lifting the torso from the prone position," both lasting one minute, had the highest increases in the signals values (52.37% and 39.71%), respectively. The test "Shuttle running 4x10 m" and the test "throwing a stuffed ball" both recorded the least increase within the signs values, which was 5.38%.

Table 4. Indicators values of the female' student bodily health earlier than and after the experiment (N=30)

TEST	Before experiment		After experiment		P	t	Growth value (%)
	M	SD	M	SD			
Bend from a standing position forward (cm)	11.08	6.21	14.51	7.31	<0.05	2.57	26.81
Hopping over a skipping rope, 1 minute (times)	87.18	5.3	98.31	5.89	<0.05	3.1	12
Lifting the torso from the prone position, for 1 min (times)	24.48	5.76	36.61	6.45	<0.05	2.88	39.71
Long jump (cm)	146.48	4.71	163.21	5.94	<0.01	3.55	10.8
Pull-up on a low crossbar from a prone position (times)	5.68	5.59	9.71	7.85	<0.05	2.54	52.37
Runing 5-minute (m)	989.28	8.49	1157.51	99.53	<0.01	3.33	15.67
Running 30 m, (s)	5.38	3.49	4.51	3.23	<0.05	2.35	17.59
Shuttle running 4x10 m (s)	10.88	5.28	10.31	4.29	<0.05	2.46	5.38
Throwing a stuffed ball 1 kg, (cm)	462.88	6.78	508.41	7.86	<0.01	3.55	9.38
Right handgrip, kg	31.48	3.09	39.51	3.63	<0.05	2.74	22.62
Left handgrip, kg	29.38	3.74	35.51	4.65	<0.05	2.65	18.89



The number of women with a "medium" level of physical training increased from 14 (46.7%) to 20 (66.6%) at the end of the test, and the number of women with such a "high" stage increased from 6 (20%) to 10 (33.4%). There were no women with a "poor" level of physical fitness. At the conclusion of the test, the tested women's comparative handgrip evaluations revealed an increase in right-hand strength by a factor of 22.62% and left-hand strength by a factor of 18.89%.

Dicussion

Ihor Bakiko et al. (2020) found that the health of Ukrainian boys in the fifth and sixth grades is subpar, at 91.0% and 88%, respectively. There is a comparable situation among girls. These physical learning models attested to the overall poor performance (Kriemler, 2011). According to a pilot study conducted by researchers from Poland, great interval education (GB-HIIT) during school gymnastics hours performed generally below averagely when measured using the conventional format. 2020 (Segovia, Gutierrez). The literature includes information on how university students might use fitness time to raise their physical activity levels in gym classes (Zhamardiy et al., 2020).

As a result, it is necessary to look for fresh ideas to increase the value of physical education classes in schools (Kolumbet & Dudorova, 2016), which underlines the significance of supporting research, our steadfastness The development of children's physical activity has become well-known all over the world thanks to complex school physical activity packages that provide synergies in five areas: excellent school physical learning throughout the school day, teachers, parents, and other family members who are active in the development of children's physical activity, as well as college student physical exercise before and after school. The effectiveness of physical learning aids on younger college students is frequently criticized by advanced programs (Furman et al., 2018).

Dysmotility and poor fitness among young pupils prevent proper motor skill development (Devad D'ibri, 2017), poor health (Tolgfors, & Ohman, 2016), and proper body system operation in numerous European nations (Nosko et al., 2016), as well as Vietnam (Dao CT., 2019; Osipov et al., 2017).

Increasing the minimum number of hours needed for a student's physical education is now not always feasible. Researchers in Vietnam, Bosnia, and Solovia promote the physical development of children through extracurricular sports (Dao CT, 2019; Dao CT et al, 2019). The physical health of college students is significantly impacted by adding more physical activity as a complement to top sports activities in schools (Dao CT, 2019; Talovi et al., 2015).

The present present study results do not contradict with the research literature of other authors (Natal'ya M et al, 2020), it shows that the heartbeat phenomenon Slowing down is a specific effect of general endurance training. Research results of (Kolokol'tsev et.al., 2018) have shown that the reserve capacity of the cardiovascular system of students increases during exercise which increases their mobility during exercises, general endurance exercise test.

This is in line with the findings of the current investigation. The application of the proposed course, "Pilates for female students, ages 17 to 19," Its success is demonstrated by a rise in the proportion of female students with "mean" and "above mean" physical health scores and a decrease in the proportion of female students with "poor" and "below mean" scores. Following the exam, the female students' pulse (heart rate) at rest decreased by 16.25% (p 0.05), and their Robinson index value decreased by 20.46% (p 0.05), which yields The body becomes more adapted to physical stresses as a result of the circulatory system's sparing use of energy.

The total endurance index value of the girls in the "5-minute run" test improved by 15.67% as a result of the current study at the conclusion of the trial. After the test, the Genche and Stange tests'



hypoxic breath samples had longer breath retention times. It shown that when female students engaged in physical activity, their aerobic capacity increased. Other scientists have verified that breath retention by swimmers increases their aerobic capacity (Ziambetov et.al., 2016).

Conclusion

The degree of physical health, functional indicators of the cardiovascular and pulmonary systems, and the application of gymnastics technology from the "Pilates" system in supplemental physical education are all examined in this pedagogical experimental study. Female college students aged 17 to 19 have improved physical fitness. This experimental program has the potential to improve the pedagogical efficacy of physical education for female students between the ages of 17 and 19 and can be suggested for application in other educational institutions. Further investigation into fitness technology employed in students' supplemental physical education classes, in my opinion, is a potential avenue for a future program that intends to enhance the physical health of students and contemporary youth.

Conflict of interest. The authors declare no conflict of interest.

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