

HIGH SCHOOL FEMALE STUDENTS' SATISFACTION DEGREE AFTER PRACTICING SPECIFIC AQUAGYM PROGRAMS AS AN EXTRACURRICULAR ACTIVITY

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ABSTRACT. Introduction. The aquatic environment offers numerous exercise opportunities with a focus on achieving sports performance, as well as a number of beneficial effects compared to the terrestrial environment. The biological adaptation to aquagym-specific exercises, supported by the physical properties of the aquatic environment, is the response of the body to physical stimuli leading to ameliorative changes in body functions. The novelty of the activity and the relative ease of this form of physical exercise stimulated and motivated the female participants in an aquagym program carried out in the 1st semester of the school year 2021-2022. **Objective.** Our statement is supported by the results obtained from carrying out a satisfaction survey which aimed to highlight the impact of aquatic recreational activities, namely aquagym, and the effectiveness of the means selected in the operational programs on motor and functional capacity. **Materials and Methods.** The study included 37 high school female students, aged 16-17, from “Carol I” National College in Craiova. In order to optimize the students’ motor skills, an aquagym-specific program of exercises was developed and carried out along 12 sessions of 50 minutes each. At the end of the program, an opinion questionnaire was administered addressing high school female students’ degree of satisfaction with the content of aquagym sessions. **Results.** The application of the questionnaire-based satisfaction survey highlighted the advantages of practicing aquagym ranging from bio-motor benefits, such as the increase in flexibility, balance and muscular strength, to

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aspects outlining the improvement in some components of quality of life. The result of this survey confirms that the aquagym program was appreciated by the students who became aware of the positive effects obtained. **Conclusions.** Our students' participation in aquagym-specific programs revealed the need to improve the educational offer of the school subject Physical Education and to harmonize the contents of the classes with students' options. The analysis of the survey findings shows that the students rated the recreational content higher than the effects on motor skills and, surprisingly, a very small percentage of the students appreciated the effects on body shaping.

Keywords: *aquagym program, motor capacity, action systems, satisfaction, high school female students*

REZUMAT. Gradul de satisfacție al elevilor de liceu după practicarea programelor specifice de aquagym ca activitate extracurriculară. Introducere.

Mediul acvatic oferă numeroase oportunități de exerciții fizice, cu accent pe obținerea de performanțe sportive, precum și o serie de efecte benefice în comparație cu cele oferite de mediul terestru. Adaptarea biologică la exercițiile specifice aquagym-ului, susținută de proprietățile fizice ale mediului acvatic, este răspunsul organismului la stimuli fizici care provoacă modificări ameliorative ale funcțiilor corpului. Noutatea activității și relativa facilitate a acestei forme de practicare a exercițiului fizic a stimulat și motivat participantele la un program de aquagym, desfășurat în anul școlar 2021-2022, semestrul I. **Obiectiv.** Afirmatia noastră este susținută de rezultatele obținute în urma aplicării unui chestionar de satisfacție care și-a propus să evidențieze impactul activității ludico-recreative acvatice, respectiv a aquagym-ului și eficiența mijloacelor selecționate în cadrul programelor operaționale asupra capacității motrice și funcționale. **Materiale și metode.** Studiul a inclus 37 de eleve de liceu cu vârsta cuprinsă între 16-17 ani de la Colegiul Național „Carol I” Craiova. Pentru optimizarea capacității motrice a elevilor s-a alcătuit un program de exerciții specifice aquagym-ului, desfășurat timp de 12 ședințe, cu o durată de 50 de minute. La sfârșitul programului a fost aplicat un chestionar de opinie vizând gradul de satisfacție al elevilor de liceu cu privire la conținutul ședințelor de aquagym. **Rezultate.** Aplicarea chestionarului de satisfacție a evidențiat avantajele practicării aquagym-ului pornind de la beneficiile bio-motrice, cum ar fi creșterea flexibilității, echilibrului și forței musculare, către aspecte ce conturează îmbunătățirea unor componente ale calității vieții. Rezultatul prezentei anchete confirmă faptul că programul de aquagym a fost apreciat de eleve, care, au conștientizat efectele pozitive obținute. **Concluzii.** Participarea la programele specifice aquagym-ului a evidențiat nevoia de îmbunătățire a ofertei educaționale la disciplina educație fizică și a racordării conținuturilor lecțiilor la opțiunile elevilor. Din analiza rezultatelor chestionarului se remarcă faptul că elevele apreciază mai mult conținutul recreativ, mai puțin efectele asupra capacității motrice și în mod surprinzător, un procent foarte mic au apreciat efectele asupra modelării corporale.

Cuvinte cheie: *program aquagym, capacitate motrică, sisteme de acționare, satisfacție, elevele de liceu*

Introduction

The aquatic environment offers numerous exercise opportunities with a focus on achieving sports performance, recovering from various conditions and, last but not least, on increasing exercise capacity which results in physical fitness.

Innovative ways to increase the level of fitness through physical activity are intensely looked for in contemporary society. Many scientists believe that the use of innovative technologies could solve this problem (Kovaleva & Andrieieva, 2011; Krutsevich, Vorobiov & Bezverkhnya, 2011).

Nowadays physical exercise plays a key role in people's well-being and health, and exercising regularly, especially outdoors, can help improve their health and ensure a more productive and enjoyable life.

Several authors state that the physical inactivity of high school students has become a major concern for current and future public health (Bonnema, Coetzee & Lennox, 2020; Mayorga-Vega, Saldías & Viciana, 2019). That is why today's society aspires to promote education that develops life skills and creates healthy environments in which children and adolescents are taught to adopt a healthy lifestyle.

Teenage girls are much more physically inactive than boys. Health and sports experts recommend water sports as a viable alternative. The benefits of exercise in the terrestrial environment are well known, but if they are performed in the aquatic environment, they bring an important advantage for the human body, especially when they are practiced in an organized setting.

Swimming is an activity that requires all the muscles. But the fear of water is a barrier for many young people. For them, aquagym is an easy alternative with approximately similar effects.

Aquagym is part of the modern exercise trends and is an activity that transfers the means of basic gymnastics into the aquatic environment. The action systems can be taught analytically or globally, individually but especially in groups, their purpose being to stimulate the cardiovascular system and increase motor (Banks & Reimann, 2012; Costa et al., 2012) and functional capacity, pursuing a harmonious physical development and an increase in quality of life (Bădău et al., 2015; Silva et al., 2019). Exercises in warm water have also been suggested to reduce depression and improve mood (Silva et al., 2019). They are considered attractive, combining the benefits of aerobics with those of swimming, fitness, stretching and hydromassage. The attractiveness of aquagym is also supported by the fact that it has a low impact on the joints compared to the exercises performed in the terrestrial environment, generating greater comfort and satisfaction (Jones et al., 2009; Fiskén et al., 2015). The hydrodynamic properties of water, such as density, buoyancy, and resistance, make these exercises less strenuous than the physical activity on land, while

providing similar physiological effects (Folsom, 2008). Also, hydrostatic pressure, viscosity and the specific heat make the aquatic activity beneficial for certain people (Williams, Barreria & Tseh, 2020). Many studies have shown that exercises performed in water improve flexibility, balance, joint mobility, endurance and muscle strength, the aerobic capacity, muscle mass composition, and, over time, it also enhances the neuromuscular coordination in people with disabilities (Takeshima et al., 2002; Adami, 2004; Bădău, 2016).

Objective and Hypothesis

The aim of the research was to include aquagym practice as a means of attractive physical activity in the preferences and motivations of high school female students.

Determining the degree of satisfaction of a group of female teenagers who participated in 12 aquagym sessions can endorse the practice of this form of leisure-time exercise.

Materials and Methods

The present research included a number of 37 high school female students, aged 16-17, of "Carol I" National College in Craiova. The high school has an ultramodern swimming pool, but because of the pandemic there were restrictions on its use. That is why the programs of free exercises and with portable equipment, which are specific to aquagym, were performed in Leamna de Sus, at "Alegria" swimming pool.

The questionnaire-based survey was used in the approach, the data being statistically processed and the results highlighted by suggestive synoptic graphs.

In order to identify the high school female students' degree of satisfaction with aquagym programs based on free exercises, we compiled a questionnaire containing 17 items which included open-ended, closed-ended and multiple choice questions.

Results and Dicussions

Statistics of relevant items

For the first item, "On an increasing scale of 1 to 5, how much do you want aquagym to be integrated in Physical Education classes?", 26 of the students (70.30%) chose level 5, 10 students (27.00%) chose level 4, and 1 student (2.70%) chose level 3.

HIGH SCHOOL FEMALE STUDENTS' SATISFACTION DEGREE AFTER PRACTICING SPECIFIC AQUAGYM PROGRAMS AS AN EXTRACURRICULAR ACTIVITY

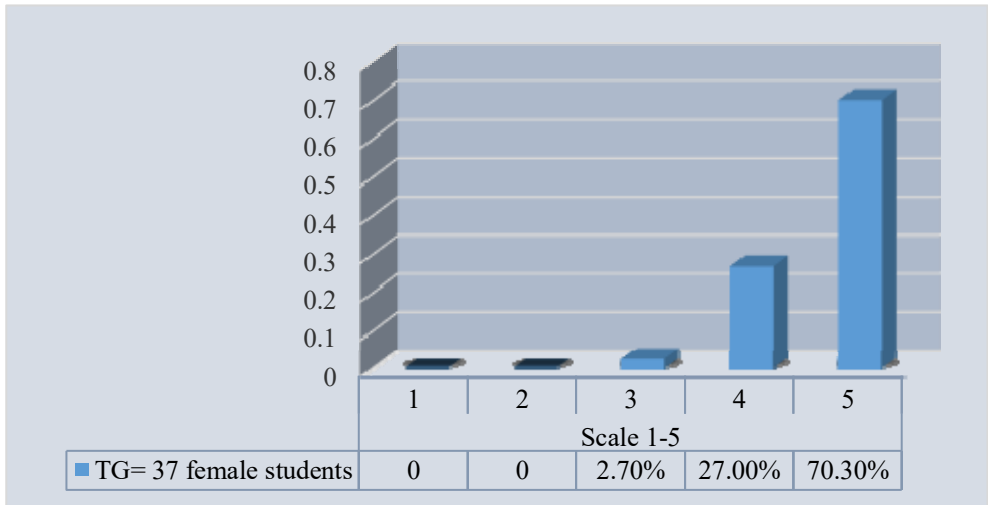


Chart 1. Percentage representation of the respondents' answers to the first item – Integrating aquagym in Physical Education classes.

At the second item, “Did you notice any positive effects on your fitness after the aquagym sessions?”, 32 students (86.50%) answered “YES”, and the rest of 5 students (13.50%) chose the answer “NO”.

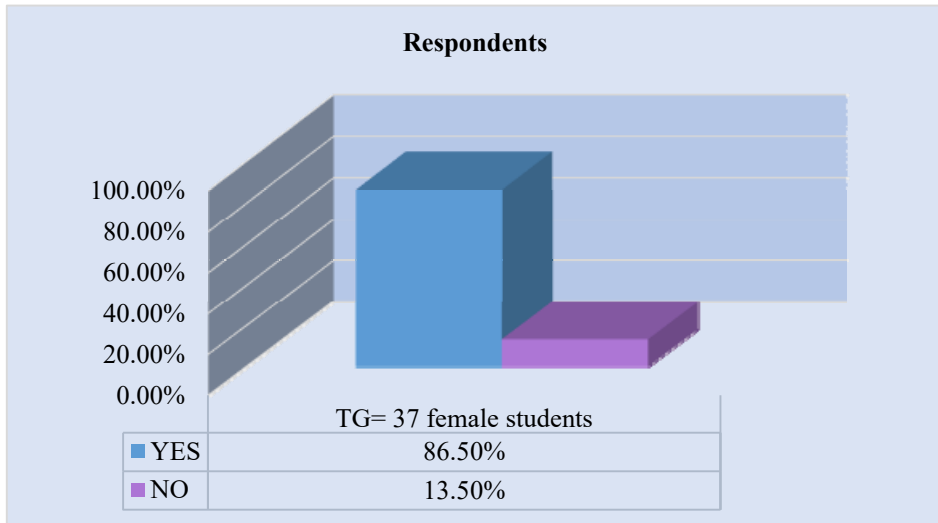


Chart 2. Percentage representation of the positive effects on fitness.

The respondents who answered in the affirmative to the previous question were then asked, at the third item, to indicate which aspect was improved.

Of those interviewed, more than 21% opted for mental relaxation and muscle toning, followed by 16% who chose improvement in exercise endurance, and 13% opted for the third option - improvement in fitness. The fourth option was represented by improvement in balance, mobility and health, as well as hydromassage, each being chosen by 8%. Of the 9 options, the least motivating were body shaping (3%) and weight loss (2%).

Table 1. Answers to question 3.

Effect	Option
Improvement in fitness	5
Muscle toning	8
Weight loss	1
Mental relaxation	8
Improvement in exercise endurance	6
Improvement in balance and mobility	3
Hydromassage	3
Body shaping	1
Improvement in health	3

As regards the fourth item on the degree of attractiveness of aquagym sessions, out of a total of 37 subjects, 31 assessed it at the maximum level, which represents 83.80%, 5 subjects rated it with 4, representing a percentage of 10.80%, and the remaining 2 subjects graded the activity with 3, corresponding to 5.40%.

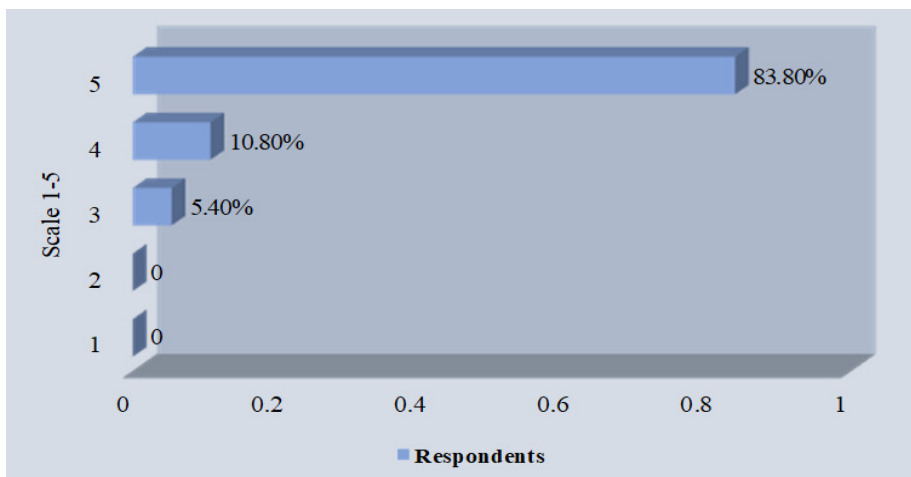


Chart 3. Percentage representation of aquagym attractiveness.

HIGH SCHOOL FEMALE STUDENTS' SATISFACTION DEGREE AFTER PRACTICING
SPECIFIC AQUAGYM PROGRAMS AS AN EXTRACURRICULAR ACTIVITY

The next item was focused on the effectiveness of aquagym exercises to improve fitness. Of the 37 subjects, 30 gave a maximum of 5, which represents 81.10%, 6 students marked it with 4, namely 16.20%, and 1 student assigned it 3 points, which represents 2.70%. This means that 75% of the surveyed female students realized that they were in good physical shape after participating in the exercise programs carried out in the aquatic environment.

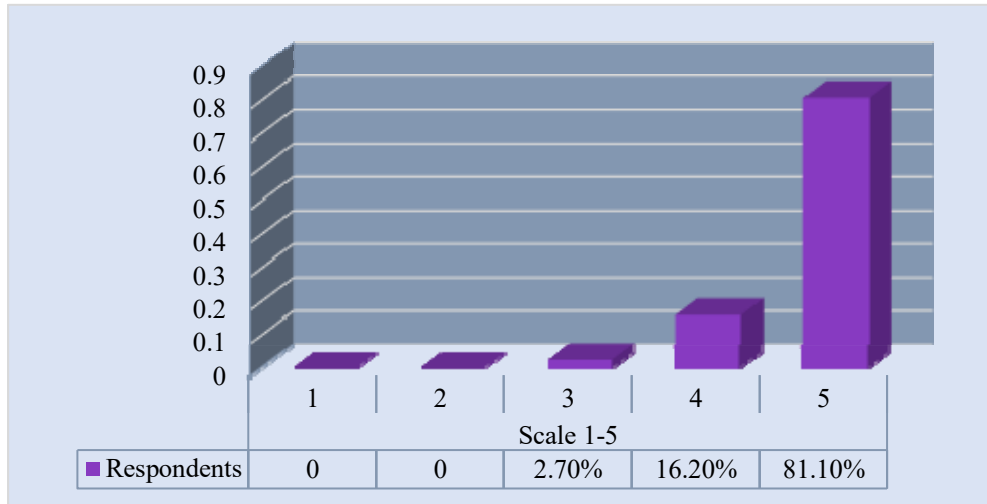


Chart 4. Percentage representation of the exercises used in the aquagym program from the point of view of achieving good physical fitness.

The sixth item, “Which part of the aquagym program did you enjoy the most?”, triggered the following answers:

Table 2. Answers to question 6.

Workout program – content	Number of respondents	Percentage
the warm-up exercises performed in water	2	5.40%
the aerobic part	7	18.90%
the localized part	0	0
the stretching round	3	8.10%
the recreational games	4	10.80%
the breathing exercises	0	0
the entire program	21	56.80%

At the seventh item, “Practicing aquagym has influenced you more from a physical, mental, emotional or social point of view?”, 27 of the respondents, representing 73%, answered that it influenced them from the point of view of physical development, 6 students responded that it influenced them mentally, representing 16.20%, followed by 3 students who were influenced emotionally, that is 8.10%, and 1 student picked the social point of view, namely 2.70%.

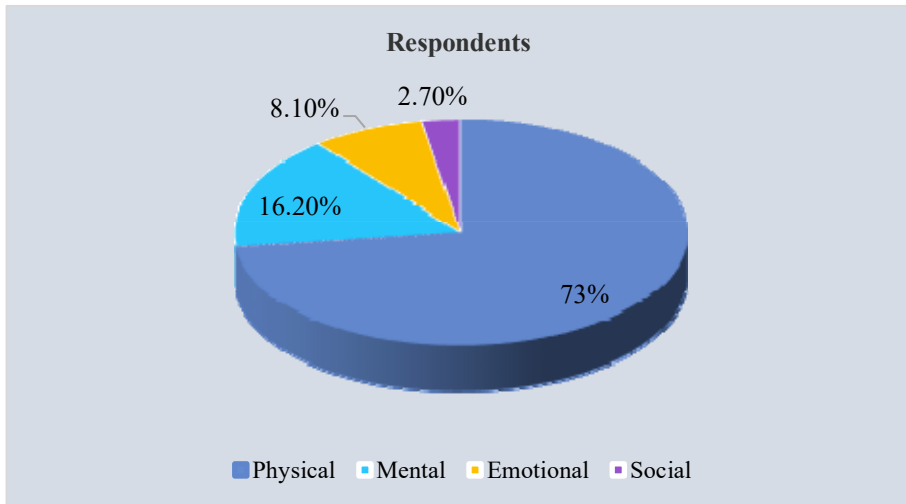


Chart 5. Percentage representation of physical, mental, emotional and social development after practising aquagym.

As regards the item “From a psychological point of view, do you think that this activity can contribute to reducing the levels of anxiety faced by young people nowadays?”, 36 respondents answered “YES”, that is 97.30%, which means that the vast majority of subjects considered that this form of exercise had a positive effect on students’ anxiety in today’s society whereas only 1 student, representing 2.70%, believed that, from a psychological point of view, it did not contribute to the decrease of anxiety.

At the ninth item, “Aquagym as a form of exercise good for health is: very important, little important and not important”, the subjects answered as follows: out of a total of 37 respondents, 18 answered “very important”, namely 48.60%, and the other 19 chose the answer “important”, corresponding to 51.40%. The last two options, “little important” and “not important”, were not picked by any students. Therefore, the respondents appreciated this form of exercise as important and very important for their health.

HIGH SCHOOL FEMALE STUDENTS' SATISFACTION DEGREE AFTER PRACTICING SPECIFIC AQUAGYM PROGRAMS AS AN EXTRACURRICULAR ACTIVITY

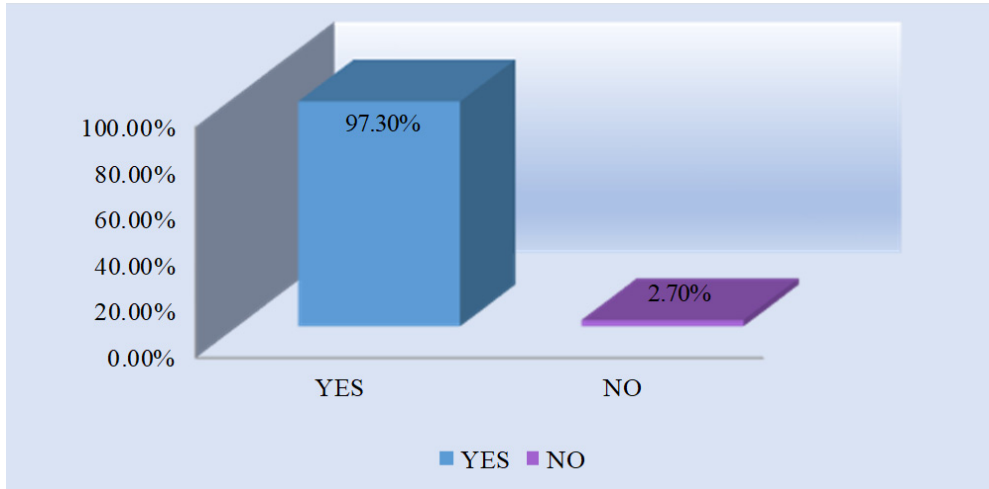


Chart 6. Percentage representation of the respondents' answers about the potential of aquagym to relieve anxiety.

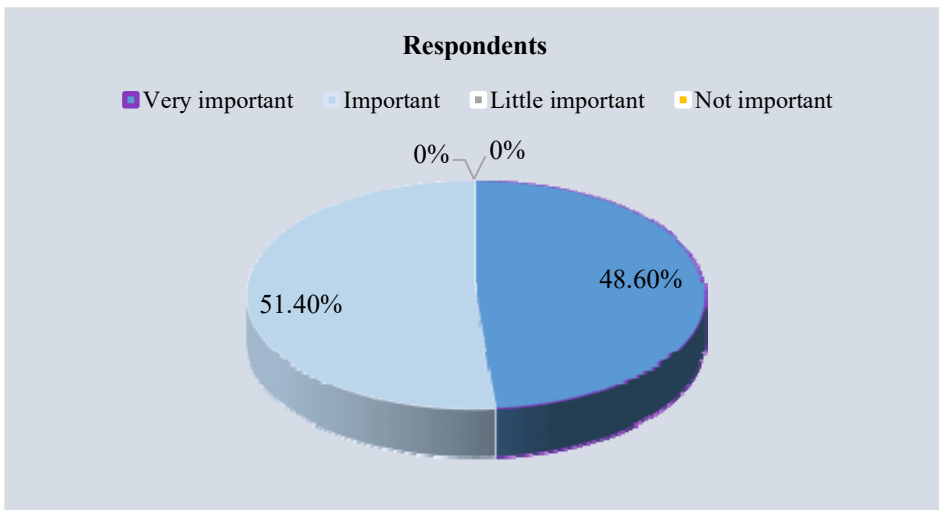


Chart 7. Percentage representation of the importance of aquagym as a form of exercise for health.

The answers to the tenth item, “Do you think that aquagym programs have had a beneficial effect on the development of motor skills (strength, endurance, speed, skill)?”, were an unanimous “Yes”, as 100% of the respondents noticed the beneficial effects of aquagym programs on motor skills.

The next item was worded as follows: “On a scale of 1 to 3 (1 is the least important, 2 important, 3 very important) which of the following aspects do you consider most relevant to you?”. As can be seen, mental relaxation still ranked first, followed by the increase in endurance capacity. Also, 24 respondents considered muscle toning important.

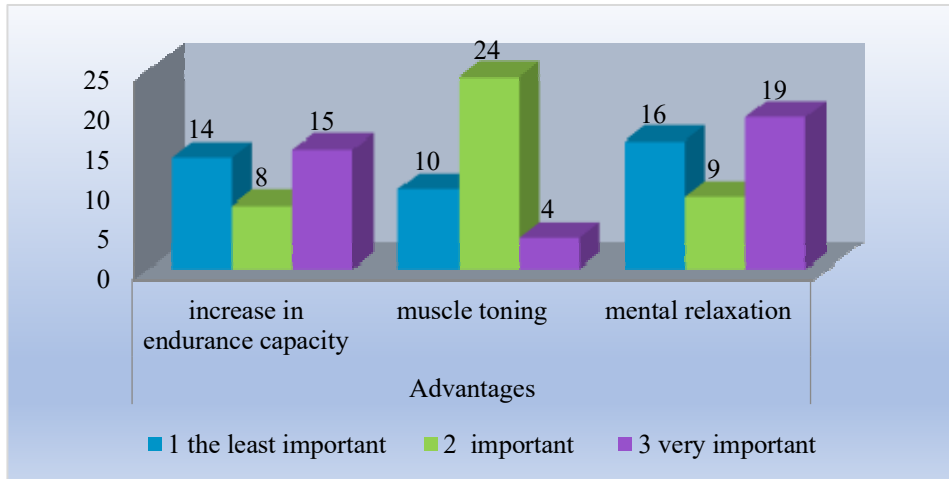


Chart 8. Percentage representation of the importance of the increase in endurance capacity, muscle toning and mental relaxation.

At the twelfth item, “Do you think that the diversity of the exercises used in the aquagym classes was effective?”, 100% of the respondents in the experimental group answered that the diversity of exercises was effective.

Likewise, at the next item, “Do you think that the number of exercises and their dosing were effective?”, all the participants in the research, namely 100%, answered that that the number of aquagym exercises and their dosing were effective.

For the fourteenth item on the effectiveness of teaching resources used in aquagym classes, structured on programs for preparing free exercises and with portable equipment, 35 students chose the answer “effective”. The attractiveness of the design of the teaching resources was 100% appreciated, the ease of handling them was appreciated by 33 students, and 4 considered that they were difficult to handle.

HIGH SCHOOL FEMALE STUDENTS' SATISFACTION DEGREE AFTER PRACTICING SPECIFIC AQUAGYM PROGRAMS AS AN EXTRACURRICULAR ACTIVITY

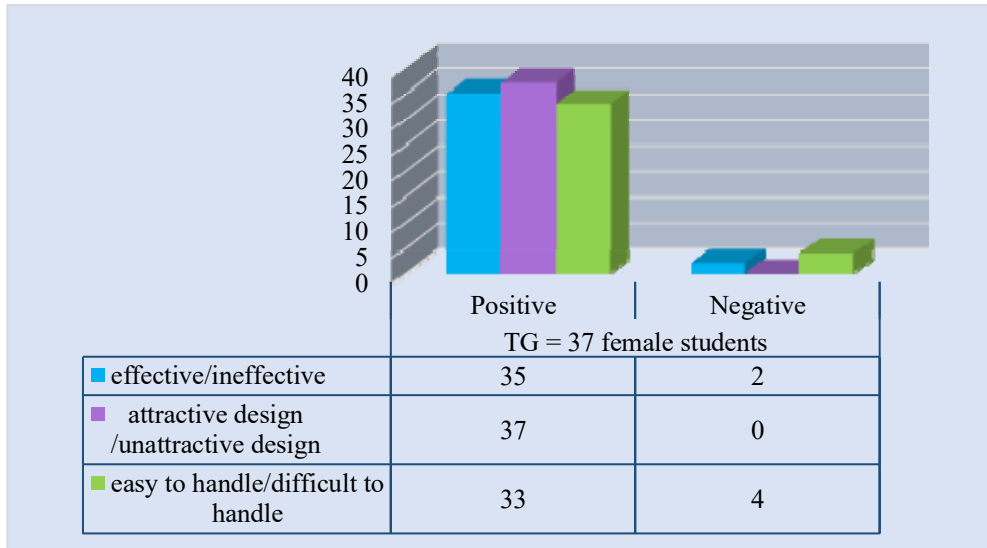


Chart 9. Percentage representation of the respondents' answers about the effectiveness of teaching resources, the attractiveness of their design and their user-friendliness.

Table 3. Respondents' opinion about the benefits of aquagym.

Benefits after participating in aquagym programs	Number of respondents	Percentage
General improvement in fitness	33	89.20%
Improvement in muscle flexibility and suppleness	29	78.40%
A relaxing effect and stress relief	27	73.00%
Improvement in endurance capacity	23	62.20%
Calory burn and weight loss	17	45.90%
Increased self-confidence and self-esteem	15	40.50%
Cellulite reduction	14	37.80%
Improvement in balance	14	37.80%
Strenuous exercises are easier to perform	13	35.10%
No risk of injury	9	24.30%

Chart 10 shows the satisfaction degree of the female students in the experimental group regarding the innovative method aquagym. Out of 37 subjects, following the aquagym specific exercise programs, 27 students responded that they were very satisfied, that is 73.00%, and 11 students answered that they were satisfied, corresponding to 29.70%.

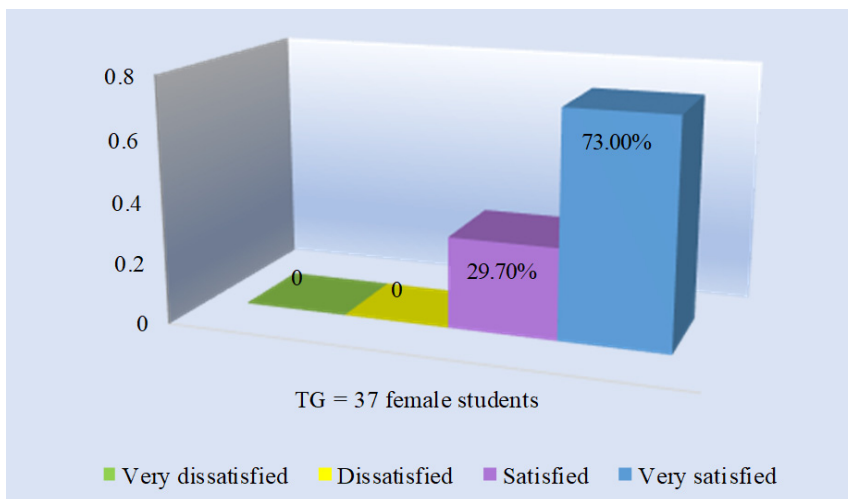


Chart 10. Percentage representation of experiencing the innovative method aquagym.

At the last item, “Would you attend such classes again in the years to come?”, 89.20% of the subjects answered “YES”, and 10.80% answered “NO”. 33 students declared that they wanted to participate again in such programs in the following years, and only 4 students responded in the negative. As can be seen, a relatively high percentage (89.20%) of the total number of female students in the sample (37) under research expressed their wish to take part in such aquagym programs in the coming years, as well.

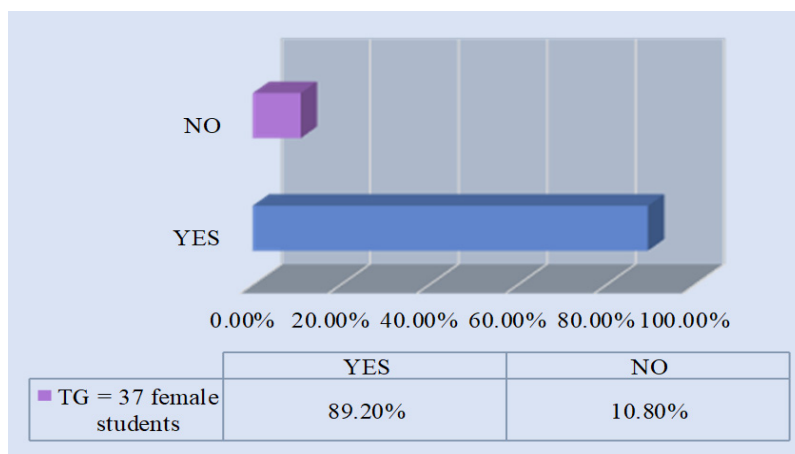


Chart 11. Percentage representation of the students' feedback on attending aquagym classes in future years.

Conclusions

The processing of the obtained data and their interpretation led us to the following conclusions.

Taking into account the answers to this questionnaire-based survey, we can infer that aquagym is a recreational and enjoyable aquatic activity with an attractive and effective structure due to the specific means of action which also include exercises with portable equipment having an appealing user-friendly design.

Applying the questionnaire led to the students' awareness of some benefits of practicing aquagym, which contributed to the increase in the interest for this activity but also for the constant practice of physical exercise. Being carried out in a group, the activity contributed to the improvement in interpersonal relationships, the subjects being motivated to endure the effort and complete the proposed program.

Given that our subjects were girls, it is surprising that they did not mark body shaping as their first option. The constant choice in various forms of the answers regarding mental relaxation and the attractiveness of the workout sessions, but also the appreciations for their effectiveness in developing motor skills give certainty to the answers to the last item regarding students' willingness to continue participating in such physical activities. As a result, we can say that the respondents' degree of satisfaction is very high and this will make them practice aquagym in their free time and convince other colleagues to join them in doing this type of physical activity.

The swimming pool at "Carol I" National College in Craiova will enable the promotion of aquagym among adolescents and its systematic practice will significantly contribute to increasing the quality of their lives. Being aware of the specificity and benefits of aquagym, young people will become interested in performing sports activities during their leisure time, thus changing their mentality and adopting an active lifestyle.

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