analytical ability. A stable and nutritious diet provides the brain with energy, reduces mood swings, and decreases susceptibility to anxiety. Together, these factors create a strong physiological foundation that prevents burnout.

How to: Go to bed and wake up at the same time every day, even on weekends-this will stabilize your biorhythms. Limit caffeine after lunch to reduce latent nervous system stimulation. Add foods rich in magnesium and micronutrients to your diet: nuts, buckwheat, greens, and legumes.

Try not to skip meals to avoid sudden energy and mood swings. Create an evening relaxation ritual: a warm shower, dim lighting, and quiet activities before bed.

Practice mindfulness. Mindfulness is one of the most effective ways to reduce stress, bring your attention back to the present moment, and lessen your internal emotional swings. When your mind stops oscillating between the past and the future, tension decreases and your ability to think clearly increases. Why it works: mindfulness practices reduce activity in the brain's anxiety centers and help regulate emotional reactions. You become less impulsive, more aware of what's happening to you, and more quickly restore a state of calm. This improves concentration, reduces overload, and increases resilience to stressful situations.

How to do it: Try a simple "5 senses" exercise it brings your attention back to your body and the present moment. Name five objects you see around you. Listen and notice four sounds you hear. Find three objects you can touch. Identify two smells you smell. And finally, one taste you taste. This exercise takes just a few minutes and is effective in reducing anxiety, even on a stressful day.

Strengthen your social connections. Support from others is a key factor in psychological resilience. Social connections help you get through difficult times, provide a sense of belonging, and create an emotional "cushion" that mitigates the impact of stress.

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THE EFFECTIVENESS OF HEALTH-ORIENTED SWIMMING FOR IMPROVING PSYCHOSOCIAL WELL-BEING IN OVERWEIGHT ADOLESCENTS

The article focuses on examining the impact of a health-oriented swimming program on the psychosocial indicators of adolescents with varying levels of physical development. The relevance of the study is due to the increasing frequency of psycho-emotional disorders and low self-esteem among modern youth, as well as the need to introduce effective, scientifically based forms of physical activity to strengthen mental health. Swimming, as a type of cyclical physical activity with a pronounced relaxing effect, has the potential to positively influence the emotional state, self-esteem, social adaptation, and body image of adolescents.

The study was conducted in two stages: a baseline and a formative experiment involving 84 participants aged 13–15 who attended a specially designed health-oriented swimming program for 6 months aimed at developing psycho-emotional stability, social integration, and a positive body perception.

Standardized psychodiagnostic methods were used to evaluate the effectiveness of the program: the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Mattick–Clarke Social Anxiety Scale (1998), the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988), and the Body Image Satisfaction Scale (Busch et al., 2018).

The study aimed to determine the effect of health-oriented swimming on changes in self-esteem, social anxiety, positive affect, and body image satisfaction in adolescents.

Statistically significant positive changes ($p < 0.05$) were found in all studied indicators: self-esteem increased from 21.6 to 29.8 points (Cohen's $d = 2.03$), body image satisfaction increased from 18.7 to 27.9 points (Cohen's $d = 2.32$), social anxiety decreased from 52.3 to 38.6 points (Cohen's $d \approx 1.57$), positive affect increased from 24.9 to 35.7 points (Cohen's $d = 2.09$), and negative affect decreased from 31.8 to 22.3 points. No similar statistically significant changes were recorded in the control group.

The results obtained are consistent with the findings of foreign studies (Dahl et al., 2021; Tang et al., 2022; White et al., 2022; Costa et al., 2022), which confirm the positive impact of water activities on the psychological and emotional state, as well as social behavior, of young people. The proposed health-oriented swimming program can be effectively integrated into physical education practices in educational institutions to prevent emotional disorders and strengthen the mental health of adolescents.

Keywords: *health-oriented swimming, adolescents, overweight, self-esteem, body image.*

Путров Сергій, Омельчук Олена, Хіміч Ігор Ефективність плавання з метою покращення здоров'я для підвищення психосоціального благополуччя у підлітків з надлишковою вагою. *Актуальність дослідження зумовлена зростанням частоти психоемоційних розладів та низької самооцінки серед сучасної молоді, а також необхідністю впровадження ефективних, науково обґрунтованих форм фізичної активності для зміцнення психічного здоров'я. Плавання, як вид циклічної фізичної активності з вираженим розслаблювальним ефектом, має потенціал позитивно впливати на емоційний стан, самооцінку, соціальну адаптацію та уявлення підлітків про власне тіло. Дослідження проводилося у два етапи: базовий та формувальний експеримент, у якому взяли участь 84 підлітки віком 13–15 років, які протягом 6 місяців відвідували спеціально розроблену оздоровчу програму з плавання, спрямовану на розвиток психоемоційної стабільності, соціальної інтеграції та позитивного сприйняття власного тіла. Метою дослідження було визначити вплив плавання, орієнтованого на здоров'я, на зміни самооцінки, соціальної тривожності, позитивного афекту та задоволеності сприйняття свого тіла у підлітків. Отримані результати узгоджуються з висновками зарубіжних досліджень які підтверджують позитивний вплив водних занять на психологічний та емоційний стан, а також на соціальну поведінку молоді. Запропоновану оздоровчу програму плавання можна ефективно інтегрувати в практику фізичного виховання в навчальних закладах з метою профілактики емоційних розладів та зміцнення психічного здоров'я підлітків.*

Ключові слова: *оздоровче плавання, підлітки, надмірна вага, самооцінка, сприйняття свого тіла.*

Introduction. Overweight and obesity among adolescents have become a global medical and social problem that directly affects the physical, mental, and social health of the younger generation (World Health Organization [WHO], 2022). Adolescence is a critical period of personality development, during which there is increased sensitivity to social evaluation and the formation of self-esteem (White, Ntoumanis, & Ekkekakis, 2022). Excessive body weight during this period is often combined with low physical fitness, lack of confidence in one's own abilities, difficulties in social adaptation, and the development of psychological complexes (Costa, Martins, & Ferreira, 2022).

In the context of declining overall physical activity among adolescents, health-oriented forms of sport that combine physical development with emotional release and social interaction are becoming increasingly important. One such form is health-oriented swimming, which is characterized by its versatility, safety, and high effectiveness for individuals with excess body weight (Bąk-Sobieraj & Sobieraj, 2024). Aquatic activities reduce mechanical load on the musculoskeletal system, promote the development of the cardiovascular and respiratory systems, improve posture, and simultaneously create a comfortable environment for overcoming psychological barriers and fostering a positive body image (Blomstrand & Nilsson, 2023).

Despite the proven effectiveness of swimming for physical rehabilitation and disease prevention, its impact on the psychosocial well-being of overweight adolescents remains insufficiently studied. Most research conducted in Ukraine and internationally focuses primarily on morphofunctional indicators, such as changes in body weight, endurance, heart rate, or respiratory function (Biletska, 2020; Kashuba, 2021; Petrenko, 2022). Meanwhile, the emotional, social, and cognitive aspects of participation in health-oriented swimming programs are often overlooked, creating a significant research gap in understanding the comprehensive influence of this type of physical activity on adolescent personal development.

Ukrainian scholars (Kashuba, 2021; Goncharenko, 2020; Shiyan, 2012) emphasize the need to develop a holistic approach to physical education for children and adolescents, combining the development of physical qualities, psycho-emotional stability, and social integration. In particular, the works of O. V. Kashuba (2021) emphasize the importance of individualizing health programs, considering the morphotype and psychophysiological characteristics of children. Research by I. Biletska (2020) shows that systematic swimming contributes to increasing the adaptive potential of schoolchildren's bodies, but its impact on emotional state and interpersonal relationships has not been the subject of in-depth analysis. Thus, there is

an objective need to study the effectiveness of health-oriented swimming as a means of improving not only physical but also psychosocial indicators in adolescents who are overweight.

Foreign scientists (Dahl, Børve, & Krogstad, 2021; Rodríguez-González, López-López, & Nieto, 2023) have proven that participation in group water activities contributes to increased self-esteem, the development of communication skills, and a reduction in anxiety among young people. However, most studies focus on short-term results and do not track the long-term effects of health programs. In Ukraine, there are also a limited number of studies aimed at assessing the psychological impact of swimming. The works of L. Petrenko (2022) and M. Goncharenko (2020) confirm the positive impact of water training on the physical condition of schoolchildren, but the psychosocial effects of swimming remain insufficiently explored.

At the same time, current trends in physical culture and pedagogy are focused on integrating the physical and psycho-emotional components of adolescent development. Therefore, it is important to create scientifically based health-oriented swimming programs that consider the motivational, social, and psychological factors of youth activity. Such approaches are in line with the strategic directions of reforming the physical education system in Ukraine, aimed at ensuring the psychophysical well-being of children and young people as a basic condition for their harmonious development.

Materials and Methods. To achieve the stated purpose, the following research methods were employed: theoretical analysis and synthesis of scientific and methodological literature, pedagogical observation, pedagogical experiment (baseline and formative stages), psychodiagnostic methods, and methods of mathematical statistics. The experimental work was carried out during 2024–2025 at swimming clubs and health pools in Kyiv and the Kyiv region. The study involved adolescents aged 13–15 (n = 84) who were overweight (according to body mass index, BMI > 25 kg/m²). All participants were divided into experimental (n = 42) and control (n = 42) groups.

Before the start of the study, informed consent was obtained from parents, as well as written assent from adolescents to participate in the program. All procedures complied with ethical standards.

The first stage (September–December 2024) was the baseline experiment, which involved studying the theoretical and methodological aspects of the problem, as well as assessing the baseline level of psychosocial well-being of the participants.

The following methods were used to record initial indicators:

• Rosenberg Self-Esteem Scale – to assess self-esteem levels;

• Social Interaction Anxiety Scale – to determine social anxiety levels;

• Positive and Negative Affect Schedule – to analyze emotional state;

• Body Image Satisfaction Questionnaire – to assess the perception of one's own body.

The second stage (January–June 2025) was the formative experiment aimed at implementing a health-oriented swimming program developed with consideration of the age-related, psychological, and physical characteristics of overweight adolescents.

The program included:

• Three training sessions per week, each lasting 60 minutes;

• A combination of aerobic exercises in water, moderate-intensity swimming complexes, and interactive games in an aquatic environment aimed at developing communication skills and self-confidence;

• Monthly mini-trainings on forming a positive body image and social interaction (in the form of short conversations and reflective exercises after training).

The control group followed the traditional school physical education program, which did not include specialized swimming lessons.

To determine changes in psychosocial well-being, repeated testing was conducted at the end of the experiment (June 2025).

The comparison of results before and after the experiment was performed using Student's t-test for independent samples.

The data obtained were processed using STATISTICA 10.0 and MS Excel 2021 software.

Results.

To ensure the scientific reliability of the results, the initial homogeneity of the sample was assessed according to demographic and anthropometric indicators. The results are presented in Table 1.

Table 1

Characteristics of the sample according to demographic and basic physical indicators

№	Indicator	Experimental group (EG), n = 42		Control group (CG), n = 42		Statistical test (p)
		$\bar{x}$	SD	$\bar{x}$	SD	
1	Gender, m/f, n (%)	20 (47.6%) / 22 (52.4%)		18 (42.9%) / 24 (57.1%)		$\chi^2 = 0.20$, p = 0.65
2	Age, years	14.1	0.7	14.0	0.6	t = 0.82, p = 0.42
3	Height, cm	162.4	7.2	161.8	6.9	t = 0.46, p = 0.64
4	Body weight, kg	68.2	9.1	67.5	8.8	t = 0.36, p = 0.72
5	BMI, kg/m²	25.9	2.1	25.8	2.0	t = 0.28, p = 0.78
6	Contingent (overweight/obese), n (%)	28 (66.7%) / 14 (33.3%)		29 (69.0%) / 13 (31.0%)		$\chi^2 = 0.05$, p = 0.82

A comparative analysis of the initial anthropometric indicators showed no statistically significant differences between the experimental and control groups in all key parameters (p = 0.05). This confirms the homogeneity of the sample and the

correctness of its formation for further pedagogical experimentation.

The average age of participants in both groups was approximately 14 years, corresponding to middle adolescence—a period considered highly favorable for the development of motivation toward health-promoting activities and the formation of positive psychosocial attitudes. The mean BMI values (25.8–25.9 kg/m²) characterize the sample as having excess body weight or an early stage of obesity, which supports the relevance of using swimming-based interventions for health improvement in this population.

Gender distribution was nearly equal within each group (approximately 45–55%), ensuring gender balance in the sample. Body mass and height indicators demonstrated moderate variability (SD = 6.9–9.1), which is typical for adolescents of this age group.

Thus, the analysis of baseline data confirmed that the experimental and control groups were statistically equivalent. Consequently, changes identified following implementation of the health-oriented swimming program can be reasonably attributed to the effect of the proposed pedagogical intervention.

To determine the baseline level of psychosocial well-being among adolescents with excess weight, psychodiagnostic methods were used to assess self-perception and self-confidence (Rosenberg Self-Esteem Scale), social anxiety and avoidance of social contact (Social Interaction Anxiety Scale), emotional state and the balance of positive versus negative emotions (Positive and Negative Affect Schedule), as well as body perception and satisfaction with appearance (Body Image Satisfaction Questionnaire).

The results are presented in Table 2.

Table 2

Baseline indicators of psychosocial well-being among overweight adolescents

No	Indicator	Severity level				t	p
		EG		CG			
		$\bar{x}$	SD	$\bar{x}$	SD		
1	Rosenberg Self-Esteem Scale (10–40 points)	21.6	4.5	22.1	4.3	0.72	>0.05
		Low		Low			
2	Social Anxiety Scale (0–80 points)	52.3	8.9	50.8	9.1	0.88	>0.05
		High		High			
3	Positive affect (10–50 points)	24.9	5.2	25.6	5.4	0.64	>0.05
		Moderate		Moderate			
4	Negative affect (10–50 points)	31.8	4.9	32.4	5.1	0.58	>0.05
		Elevated		Elevated			
5	Body image satisfaction (10–40 points)	18.7	4.2	19.3	4.4	0.91	>0.05
		Low		Low			

Analysis of the obtained data showed that, at the initial stage, no statistically significant differences were identified between the experimental and control groups across all indicators ($p > 0.05$), indicating sample homogeneity and appropriate group formation. At the same time, a general tendency toward low self-esteem was observed in most participants (mean score 21–22), which is characteristic of overweight adolescents prone to self-criticism and social isolation. A high level of social anxiety was identified, complicating communication with peers. It should also be noted that negative affect predominated over positive affect, which may indicate emotional instability and a low level of life satisfaction. Additionally, a low level of body image satisfaction was observed, associated with dissatisfaction with one's own appearance and body weight.

The baseline stage of the study confirmed the need to implement a health-oriented swimming program aimed not only at improving physical fitness but also at forming a positive attitude towards oneself, developing social contacts, and improving emotional well-being.

Implementation of the author's health-oriented swimming program, designed to improve the psychosocial well-being of overweight adolescents, combined aerobic and game-based aquatic exercises, self-perception activities, group communication sessions, and elements of psycho-emotional relaxation.

Training sessions were conducted three times per week for 60 minutes, with a gradual increase in physical and emotional load, aimed at forming a positive body image, reducing anxiety, and developing social activity.

Following implementation of the health-oriented swimming program, positive dynamics in psychosocial indicators were observed in adolescents in the experimental group. The results are presented in Table 3.

Table 3

Dynamics of psychosocial well-being indicators among adolescents after implementation of the health-oriented swimming program

No	Indicator		At the beginning of the experiment		After the experiment		Δ (Delta)	t	p
1	Rosenberg Self-Esteem Scale (10–40)	EG	21.6	4.5	29.8	4.1	+8.2	8.72	<0.05
		CG	22.1	4.3	23.2	4.5	+1.1	1.12	>0.05
2	Social Anxiety Scale (0–80)	EG	52.3	8.9	38.6	7.5	−13.7	9.03	<0.05
		CG	50.8	9.1	48.9	8.7	−1.9	1.44	>0.05
3	Positive affect (10–50)	EG	24.9	5.2	35.7	4.8	+10.8	10.11	<0.05

		CG	25.6	5.4	26.8	5.2	+1.2	1.37	>0.05
4	Negative affect (10–50)	EG	31.8	4.9	22.3	4.2	−9.5	9.26	<0.05
		CG	32.4	5.1	31.1	4.9	−1.3	1.19	>0.05
5	Body Image Satisfaction (10–40)	EG	18.7	4.2	27.9	4.0	+9.2	8.95	<0.05
		CG	19.3	4.4	20.4	4.3	+1.1	1.34	>0.05

Analysis of the data demonstrated that self-esteem increased by 38%, indicating the development of confidence in personal abilities, a positive self-attitude, and a sense of achievement during participation in the program. The level of social anxiety decreased significantly (−26%), reflecting improved interpersonal interaction and reduced fear of social evaluation. Positive emotional affect increased by almost 43%, while negative affect decreased by 30%, reflecting a stabilization of emotional state. Body image satisfaction increased by 49%, which is a key indicator of psychological adaptation and acceptance of one's body during puberty. No statistically significant changes were found in the control group ($p>0.05$), confirming the effectiveness of the health-oriented swimming program as a comprehensive pedagogical intervention.

After determining the dynamics of the main psychosocial indicators, it became necessary to conduct an in-depth analysis of the interrelationships between the individual components of the psychosocial well-being of adolescents who participated in the health-oriented swimming program. This approach allows us not only to state the fact of positive changes, but also to understand the internal structure of these changes, i.e., which psychological mechanisms contribute to the improvement of the general condition.

To this end, a correlation analysis of the main indicators (self-esteem, social anxiety, emotional state, body satisfaction) was conducted, which made it possible to determine how closely the emotional, cognitive, and social aspects of the well-being of overweight adolescents are interrelated (Table 4).

Table 4

Correlations between key psychosocial indicators (EG, n=42)

No	Indicators	Self-esteem	Social anxiety	Positive affect	Body satisfaction
1	Self-esteem	1.00	-0.64*	0.58*	0.62*
2	Social anxiety	-0.64*	1.00	-0.55*	-0.47*
3	Positive affect	0.58*	-0.55*	1.00	0.60*
4	Body satisfaction	0.62*	-0.47*	0.60*	1.00

Note: *p < 0.05 – statistically significant correlations

The identified statistically significant correlations indicate that increased selteef-esteem is positively associated with emotional state and body image satisfaction and is accompanied by a reduction in social anxiety. This underscores the integrative effect of health-oriented swimming on psychological stability and social confidence among adolescents.

In addition, to assess the practical significance of the health-oriented swimming program, effect size analysis (Cohen's d) was conducted. This made it possible to determine not only statistical significance, but also the practical pedagogical effectiveness of the program—namely, the extent to which observed changes in psychological state and social behavior can be applied in educational and training practice with adolescents.

Figure 1 shows a graph of the effect size (Cohen's d) for psychosocial well-being indicators, which clearly visualizes how strongly the health-oriented swimming program affected each aspect.

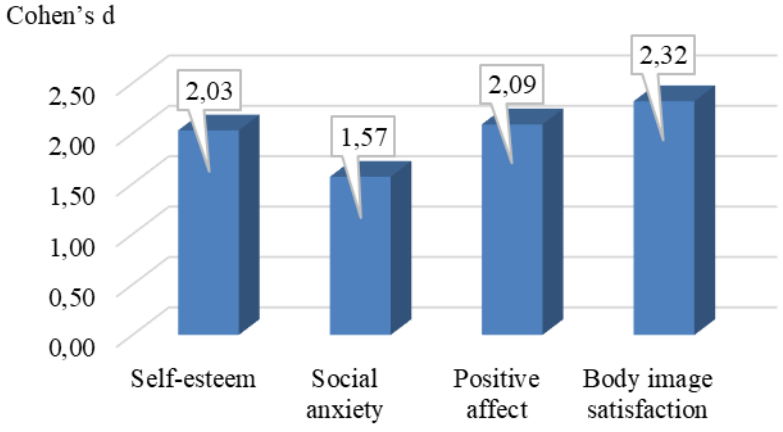


Fig. 1. Effect size of the health-oriented swimming program according to psychosocial indicators

Note: Values of d = 0.2 – small effect, d = 0.5 – medium effect, d ≥ 0.8 are considered large effects, d ≥ 1.2–2 – very large.

The obtained Cohen's d values indicate not only statistical reliability, but also the significant pedagogical and

psychological significance of the health-oriented swimming program for overweight adolescents.

Conclusions. The analysis of scientific sources demonstrated that health-oriented swimming has strong potential not only for improving the physical condition of adolescents with excess weight but also for enhancing their psychosocial characteristics, including self-esteem, emotional stability, and social interaction. At the same time, a lack of comprehensive programs integrating psycho-emotional and social components into aquatic activities was identified.

1. The developed health-oriented swimming program was adapted to the age-related, physical, and psychological characteristics of adolescents with excess weight and combined training, game-based, and reflective methods aimed at fostering positive body perception, reducing anxiety, and developing interpersonal communication.
2. The results of the pedagogical experiment revealed significant positive changes across all psychosocial indicators in the experimental group. The strongest effects were observed for body image satisfaction (Cohen's d = 2.32) and self-esteem (Cohen's d = 2.03), indicating substantial transformation in self-perception resulting from systematic swimming participation.
3. The reduction in social anxiety (Cohen's d = 1.57) and the increase in positive affect (Cohen's d = 2.09) reflect marked improvements in emotional state, decreased psychological tension, and the development of more open social behavior among adolescents with excess weight.
4. Correlational analysis confirmed strong relationships among psychosocial well-being components, particularly between self-esteem and body satisfaction ($r = 0.62$, $p < 0.05$), as well as between positive affect and social interaction ($r = 0.58$, $p < 0.05$), suggesting a systemic influence of health-oriented swimming.

Prospects for further research include investigation of the long-term effects of health-oriented swimming on emotional regulation, identity formation, and social adaptation, as well as the development of differentiated programs for various age and gender groups.

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