

THE IMPACT OF UTILITY SWIMMING ON IMPROVING HUMAN HEALTH FUNCTIONS AND SUPPORTING MENTAL STATE

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ABSTRACT

This study aims to demonstrate the correlation between the level of health and the level of physical activity, as well as to determine whether increasing public awareness in the field of health and prevention may have a positive effect on health status, and whether learning to swim during school age and earlier can help prevent the occurrence of diseases, as well as postural defects and disorders.

The study used an original questionnaire survey. 40 men and 31 women of different ages (from 10 to over 40 years) who were able to swim and engage in physical activity, participated in the research.

Analysis of the responses obtained during the study is presented as a sequential overview of all results. The survey included participants from various social backgrounds who can move in the water environment and contained questions regarding age, sex, and selected anthropometric indicators. It also included questions on the level of physical activity and the frequency of illnesses. The next part of the questionnaire addressed health-promoting behaviors and their frequency. Also, respondents answered about their attitudes toward swimming, particularly in the context of postural defects and disorders.

97% of the respondents confirmed the preventive potential of swimming in relation to disease prevention. Only 3% of participants do not believe in the preventive value of physical activity in the aquatic environment. The most frequently reported positive effect of physical activity was an improvement in well-being and increased psychological comfort, reported by 58 respondents. 38 participants reported changes in body composition, while 35 respondents confirmed an increase in muscle strength as a result of physical activity.



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1. INTRODUCTION

Health is not an absolute value; it depends on many interrelated factors, including lifestyle, environmental conditions, genetic factors, and the level of medical care. This concept cannot be understood only as the absence of

disease, because additional indicators of health can be identified, such as optimism or a sense of self-realization. Human values, aspirations, and ambitions are often decisive for concepts such as health and illness; therefore, it is difficult to find a correct, universal definition of this concept. Although many people are

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unable to define health clearly, 67% of Poles consider their own and their families' health to be the most important values that determine the meaning of life. At the same time, gradual globalization and technological development can help individuals achieve their goals. However, they also pose a particular threat to society, as they contribute to the emergence of the so-called diseases of civilization.

Illness is a state in which symptoms that are considered troublesome and painful within a given community are present. At the same time, measurements should deviate from the norm; therefore, the state of the organism should not be ideal according to culturally accepted standards of normality, which allows it to be defined as a disease.

Physical activity, including regular health-oriented swimming, is an effective way to achieve psychophysical well-being. Movement is a fundamental part of human nature, and the harmonious development of the body would be impossible without it. The bodies of physically active individuals adapt better to environmental conditions than those of sedentary individuals. By applying appropriately selected forms of movement in the water environment, it is possible to reduce total body weight, adipose tissue, and even overall cholesterol levels through improved metabolism. Physical activity can also reduce the number of premature deaths from any cause, as well as deaths related to cardiovascular complications among individuals with type 2 diabetes. Moreover, regular physical activity may help prevent breast cancer, colorectal cancer, cancer of the uterine body, prostate cancer, and lung cancer, as well as arterial hypertension, obesity, bone fractures in postmenopausal women, insulin resistance, and ischemic heart disease. Positive effects of regular physical activity include not only measurable biomedical outcomes but also benefits related to mental health, such as improved well-being, increased psychological comfort, and a significant reduction in the risk of developing mental disorders.

Body posture is the way a person holds the body in an upright, bipedal position. It represents a body arrangement characteristic of the human species. In theory, the shape and alignment of individual body parts should create an overall form that is favorable to a human being's basic functions. Correct posture depends on the cooperation of several systems, including the nervous, musculoskeletal, and muscular systems.

Incorrect body posture refers to the alignment or shape of individual body parts that becomes apparent in a free-standing position and hinders the proper functioning of the organism. These abnormalities may even have a psychological origin; however, they can both be prevented and treated through corrective or therapeutic swimming.

The disease is often a consequence of an individual's negative attitude towards his own health, shaped by the influence of a local system of values, prohibitions, and norms within his living environment, including established traditions. This leads to the conclusion that health, as well as psychological education, should not be limited to work with the individual alone, but should also

include the family, so that educational activities take into account family-based health socialization (Bailey et al., 2013).

Health can be achieved in different ways. One means of attaining health-related well-being is physical activity, which is an independent determinant of health, occupies a central place in a healthy lifestyle, and is an important factor in health maintenance. Physical activity is also an effective tool in health education for society (Bielec, 2012). Proper development of the human organism is impossible without physical activity, as it constitutes a fundamental element of human nature (Cumps et al., 2008).

The World Health Organization recommends engaging in physical activity and increasing public awareness regarding sports participation (Juszkiewicz et al., 2005). Knowledge related to active tourism and physical recreation should be transmitted from early childhood to old age. A good example of such initiatives is the Nationwide Information and Educational Campaign conducted in 2012. Its aim was to improve public awareness of the functions and significance of physical activity in everyday life, as well as to demonstrate how systematic physical exercise can prevent or help treat lifestyle-related diseases.

In the National Health Program, particular attention is paid to health promotion, defined as a process that enables individuals to increase control over their own health. This control can be ensured through regular physical activity. The Ministry of Health defined this promotion as improving health through making health-supportive choices and increasing health potential (Karkoszka, 2003).

To continuously increase the proportion of society engaging in physical activity to enhance health potential, new, increasingly attractive methods of applying broadly understood physical exercises are being sought to improve physical fitness and well-being. Regular physical activity can have a significant impact on both primary and secondary prevention. The bodies of physically active individuals adapt to living conditions much more quickly and effectively than those of sedentary individuals (Kołodziej, 1989). As a result, individuals engaging in physical exercise may have up to a twofold lower risk of death from any cause, particularly from cardiovascular diseases. It is also possible to reduce the number of premature deaths from all causes, as well as deaths resulting from cardiovascular complications among people with type 2 diabetes (Łubkowska et al., 2015).

2. AIM OF THE STUDY

This study aims to demonstrate the correlation between the level of health and the level of physical activity, as well as to determine whether increasing public awareness in the field of health and prevention may have a positive effect on health status, and whether learning to swim during school age and earlier can help prevent the

occurrence of diseases, as well as postural defects and disorders. In addition, the study examines whether physical activity leads to visible positive changes in the human body.

3. MATERIALS AND METHODS

The study involved 71 participants (40 men and 31 women). The respondents were individuals of different ages (from 10 to over 40 years) who were able to swim and engage in physical activity.

Procedure

The research was conducted through an original questionnaire designed to identify differences in health levels between physically active and inactive individuals, determine which types of physical activity (other than swimming) are chosen mainly by people who can swim, and examine the positive health effects associated with physical activity. The questionnaire included both closed-ended and descriptive questions. The survey, conducted over several months, allowed the authors to collect respondents' opinions on this topic. In addition, the authors analyzed the available scientific literature on the correlation between health and physical activity, particularly systematic recreational swimming.

4. RESULTS

The largest share of respondents was individuals aged 21–25, accounting for 60.5% of the total. The second-largest group consisted of participants aged 36–40 years, representing nearly 13% of all respondents. Slightly smaller but almost equal proportions (approximately 10% each) were observed in the 26–35-year-old and 40+ age groups. The least numerous were the two youngest groups: respondents aged 16–20 years (6% of the sample) and those aged 10–15 years, represented by only one participant.

Regarding body weight, the most numerous groups were individuals weighing 56–70 kg and 71–85 kg, each accounting for 28% of the study population. This was followed by participants weighing 86–100 kg, who accounted for 21% of the respondents. A body weight of less than 55 kg was reported by 13% of respondents, while the smallest group consisted of individuals weighing more than 100 kg, representing 10% of the total.

In terms of height, the largest group comprised individuals 176–185 cm tall, accounting for 34% of respondents, which corresponds to the average height of the Polish population. The next most numerous group included individuals taller than 185 cm, representing 22.5% of the sample. Equal proportions of 21% were observed in the height ranges of 150–165 cm and 166–175 cm. The smallest group consisted of individuals shorter than 150 cm, represented by only one respondent. Regarding illness frequency, 39% of participants reported being sick twice per year. The second most

common response was being ill once per year, reported by 32% of the study group. Illness occurring less than once per year was reported by 16% of respondents. This was followed by individuals who reported being sick once per quarter (10%). The least numerous groups consisted of participants who reported illness on average once per month, accounting for 3% of the sample. In addition, 11 respondents reported being ill less than once per year.

All respondents reported being able to swim, and, except one participant, all acquired this skill in early school age or earlier (one respondent learned to swim during his school-age years). The entire study group confirmed active participation in other forms of physical activity, such as rugby, gym training, football, or running. They also engage in physical activity other than swimming with moderate or high frequency (Table 1).

Table 1. Health-promoting measures

Health-promoting activities undertaken in everyday life	Number
Physical activity	33
Well-balanced diet	26
Adequate hydration	10
Caring for sleep quality	8
Preventive medical examinations	1
Use of sauna	1

The most frequently mentioned health-promoting activity was physical activity, indicated by 33 respondents. 26 participants noted the importance of rational nutrition or supplementation (Table 1).

Table 2. Types of Postural Defects and Disorders among the Respondents

Postural defects and errors occurring in the respondents	Number
Concave Back (Increased Lumbar Lordosis)	5
Single-Curve Scoliosis of the Thoracic Spine	4
Single-Curve Scoliosis of the Lumbar Spine	4
Single-Curve Thoracolumbar Scoliosis	4
Flat Back (Reduction of the Natural Curvatures of the Spine)	2
Double-Curve Thoracolumbar Scoliosis	2
Flatfoot (Pes Planus)	2
Rounded Back (Increased Thoracic Kyphosis)	1
Winged Scapulae	1
Lower Limb Length Discrepancy	1
Posterior Pelvic Tilt	1

In contrast, 10 respondents identified adequate hydration as a health-promoting behavior they practice in everyday life. Caring for sleep quality as a health-promoting activity was confirmed by 8 respondents. Only one participant mentioned undergoing preventive medical examinations; although this is an effective health-

promoting measure, this number cannot be considered satisfactory.

Regarding the frequency of health-promoting activities, the most common response was "often", selected by 63% of respondents. The next most frequent choice was "moderately," accounting for 26% of the total responses. The smallest groups, each representing 5.5% of the sample, selected the responses "rarely" and "very rarely". The most common postural defect among the respondents was a concave back, that is, increased lumbar lordosis, as confirmed by 5 participants. The other most frequently reported condition, reported by four respondents each, was scoliosis: single-curve scoliosis of the thoracic spine, single-curve scoliosis of the lumbar spine, and single-curve thoracolumbar scoliosis. Postural defects and disorders mentioned twice included double-curve thoracolumbar scoliosis, flatfoot, and flat back (reduction of the natural spinal curvatures). The remaining conditions were reported only once and included rounded back, winged scapulae, lower limb length discrepancy, and posterior pelvic tilt (table 2).

At the same time, it is important to note that, according to the respondents' answers, the majority of the study group did not have and had not previously had postural defects or disorders. This group accounted for 62% of the total sample, while 38% of respondents reported structural body pathologies (Łubkowska et al., 2015).

Physical activity leads to positive changes in the body, as 100% of respondents reported experiencing at least one of the proposed positive effects. In addition, only two participants selected a single response. In contrast, most respondents indicated several of the proposed positive outcomes, and individual participants added additional positive effects not included in the list of options.

Among the five individuals engaged in physical activity other than swimming rarely, two reported being ill twice per year, and two reported being ill once per year.

Moreover, almost the entire study group, namely 97% of respondents, confirmed the preventive potential of swimming in terms of disease prevention and mental well-being. Only 3% of participants do not believe in the preventive value of physical activity in a water environment. The most common answer among respondents was learning to swim at an early age, accounting for 43% of all responses. The next most numerous groups consisted of individuals who learned to swim at preschool age, accounting for 33% of the study group. 17% of respondents acquired swimming skills during school age, while the smallest group comprised individuals who learned to swim after school age, accounting for 7% of the total sample (Figure 1).

Engagement in physical activities other than swimming was also confirmed by 91.5% of respondents; only 8.5% of the study group did not participate in other forms of physical activity. Furthermore, the largest proportion of respondents did not cover a distance of 1,000 m during a single training session, accounting for 45% of the total sample. The next most numerous group (25%) consisted of individuals whose distance during a single visit to the swimming pool ranged between 1,000 and 1,500 m. Covering more than 2 km during a single training session was reported by 18% of respondents. The smallest group, representing 12% of participants, declared training sessions during which they covered distances of 1,500–2,000 m.

5. DISCUSSION

An analysis of the available scientific literature on the correlation between health, mental state, and physical activity, particularly systematic recreational swimming, indicates that regularly undertaken physical activity in the water environment has a beneficial effect on kinesthetic perception (Ministerstwo Zdrowia & Państwowy Zakład Higieny. n.d.). Improved cardiovascular function is possible in the horizontal position, which promotes better blood circulation throughout the body (Naal et al., 2007). By applying appropriately selected forms of movement in the water environment, it is possible to reduce total body weight, adipose tissue, and even total cholesterol levels through improvements in metabolic processes (Nonn-Wasztan et al., 2011), which positively influence the resolution of issues related to self-perception as an individual.

Lifelong physical activity in the water environment is one of the most effective ways to promote health. Swimming supports rehabilitation, therapeutic, psychological, and preventive interventions for the human being understood holistically (Ozer et al., 2007). Among all forms of physical activity, swimming is likely to remain the most widespread. From the perspective of human motor capabilities, this form of movement has the greatest potential to maintain physical fitness and preserve health (Paczyńska-Jędrycka & Łubkowska, 2014). The water environment also has a beneficial effect on the health of individuals with Turner syndrome, leading to reduced

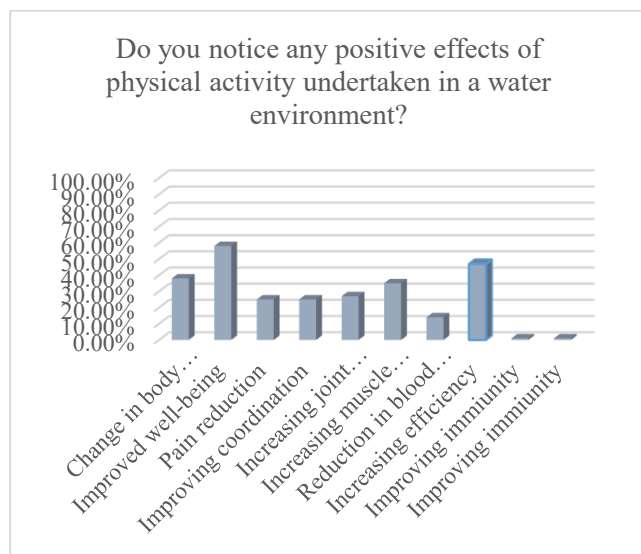


Figure 1. Observed Positive Effects of Physical Activity in the Aquatic Environment

typical complaints and symptoms (Radziwińska et al., 2013).

Numerous research reports are confirming the positive effects of swimming on children with cerebral palsy. These effects include competence development, reduced problem behaviors, and improved body awareness (Skalski et al., 2017). Swimming is a leading discipline in terms of the number of muscle groups activated simultaneously. It strengthens the entire muscular corset by specifically engaging the back and abdominal muscles (Stefańska & Zawadzka, 2006). Exercises performed in the water environment can significantly support the treatment of rheumatological diseases and assist in the rehabilitation process after surgical procedures (Tsyhanovska, 2025).

The ability to move in the water environment expands an individual's opportunities to choose recreational physical activities; therefore, swimming should be regarded as a fundamental human skill, which can effectively maintain mental health. "Teachers at every educational stage should include at least one semester of swimming pool classes in their curricula. This is particularly desirable in primary school, when children's physical activity is high, fear of water is low, and the willingness to acquire swimming skills is powerful" (Bailey et al., 2013). Individuals who can swim are more likely and more willing to participate in recreational activities such as swimming pools, kayaking, beach volleyball, surfing, sailing, diving, or simply spending time at the beach with others (White et al., 2017).

A sedentary lifestyle and many other adverse effects of modern civilization expose the human spine to various types of deformation. Swimming, by engaging all muscle groups, unloading the spine, relieving spinal pain, reducing muscle contractures, increasing joint range of motion, and strengthening the body, supports rehabilitation and corrective interventions. Due to the lack of need to maintain an upright position and the transition to a horizontal position, the tone of a significant proportion of antigravity muscles is reduced. The spine's joint-ligament system relaxes, which, in turn, stimulates deep sensation that positively affects the control of muscle tension in appropriate muscle groups (self-correction) and provides relief for individuals suffering from spinal and back pain.

In addition, to increase the effectiveness of relaxing contracted muscles, it is advisable to maintain swimming pool water temperature at approximately 30–38 °C, which further enhances smoothness and ease of movement, as well as range of motion. Hydrostatic pressure in the water environment activates auxiliary respiratory muscles, thereby increasing chest mobility and strengthening the respiratory muscle corset. As a consequence, lung vital capacity increases, and the circulatory system is stimulated, leading to an overall improvement in physical capacity (World Health Organization (2010).

The physical and chemical properties of water enable individuals who are generally unable to engage in physical activity due to conditions such as osteoporosis,

orthopedic disorders, or obesity to perform movement exercises. A key determinant of this effect is the buoyant force of water, which can reduce the perceived body weight by up to 90% (Zatoń & Zatoń, 2014).

6. CONCLUSION

Based on the conducted research, the researchers formulated the following conclusions:

- awareness of the value of physical activity in preventing diseases, as well as postural defects and disorders, may help to prevent their occurrence, as the respondents most often assessed their own frequency of illness as once per year (these individuals accounted for only 3% of the respondents), while the remaining 97% are aware of the health-promoting properties of swimming;
- learning to swim during school and preschool age may help prevent the occurrence of diseases, postural defects, and disorders, as individuals who acquired swimming skills later than school age also confirmed awareness of the role of swimming in preventing the development of certain diseases;
- physical activity leads to positive changes in the human body, as 100% of respondents confirmed experiencing at least one of the proposed positive effects of physical activity;
- when physical activity other than swimming is undertaken rarely or very rarely, illness frequency is higher: among the five individuals who engage in physical activity infrequently, two became ill twice per year and two once per year.

Moreover, the authors, being aware of the importance of preventive measures aimed at improving the health of individuals using the water environment, refine, based on the conducted research, the definition of utilitarian and recreational swimming, which in health-promoting practice is referred to as therapeutic swimming (or corrective–compensatory gymnastics in water). This approach to health improvement can be divided into four categories, as follows:

- swimming for people with disabilities aims at the physical and psychomotor development of individuals with special educational needs, that is, persons with congenital physical defects, impaired communication abilities, autism, learning difficulties, or disorders of social behavior. This group includes individuals with somatic, visual, hearing, or intellectual disabilities;
- hydrokinesiotherapy exercises use an appropriate water temperature (30–38 °C) to reduce muscle tone and thereby increase the range, smoothness, and ease of performing specific motor tasks for individuals with musculoskeletal disorders. Research confirms the effectiveness of these activities in muscle re-education, learning to walk, musculoskeletal rehabilitation, and correction of postural defects and disorders;

- corrective swimming serves both a compensatory (preventive) and a corrective (intervention) function. It includes exercises performed in the aquatic environment that retain the characteristics of locomotor movements, in which specific muscle groups (e.g., excessively shortened or overly stretched muscles) are subjected to corrective actions;
- health-oriented swimming involves the purposeful, consciously guided use of precisely defined motor tasks to achieve physical and psychological effects that help prevent a decline in the body's adaptive capacity to physical effort. Such activities may have a preventive role in slowing the development of lifestyle-related diseases, maintaining physical fitness, and supporting the proper functioning of internal body systems.

References:

- Bailey, R., Hillman, C., Arent, S., & Petitpas, A. (2013). Physical activity: An underestimated investment in human capital? *Journal of Physical Activity and Health, 10*(3), 289–308. DOI:10.1123/jpah.10.3.289
- Bielec, G. (2012). *Aktywność fizyczna w środowisku wodnym wobec wybranych celów i funkcji wychowania fizycznego – na przykładzie gimnazjów publicznych*. Gdańsk: Wydawnictwo Uczelniane AWFiS.
- Cumps, E. D., Verhagen, E. A. L. M., Annemans, L., & Meeusen, R. (2008). Injury rate and socioeconomic costs resulting from sports injuries in Flanders: Data derived from sports insurance statistics 2003. *British Journal of Sports Medicine, 42*(9), 767–772. DOI:10.1136/bjism.2007.037937
- Juszkiewicz, M., & Swałek-Juszkiewicz, B. (2005). Aktywność ruchowa w środowisku wodnym jako sposób realizacji wartości prozdrowotnych. *Annales Universitatis Mariae Curie-Skłodowska. Sectio D, Medicina, 60*(Suppl. 16), 290–293.
- Karkoszka, G. (2003). Korzyści zdrowotne płynące z pływania. *Nauczyciel i Szkoła, 3–4*(20–21), 203–211.
- Kołodziej, J. (1989). *Pływanie korekcyjne*. Kraków: Wydawnictwo Akademii Wychowania Fizycznego im. Bronisława Czecha.
- Łubkowska, W., Zdeb, T., & Mroczek, B. (2015). Ocena ukształtowania fizjologicznych krzywizn kręgosłupa dziewcząt trenujących sport pływacki i nieuprawiających pływania. *Family Medicine & Primary Care Review, 17*(3), 189–192.
- Ministerstwo Zdrowia & Państwowy Zakład Higieny. (n.d.). *Narodowy program zdrowia na lata 2007–2015 (projekt)*.
- Naal, F. D., Fischer, M., Preuss, A., Golhahn, J., von Knoch, F., Preiss, S., Munzinger, U., & Drobny, T. (2007). Return to sports and recreational activity after unicompartmental knee arthroplasty. *The American Journal of Sports Medicine, 35*(10), 1688–1695. DOI:10.1177/0363546507303562
- Nonn-Wasztan, S., Rostkowska, E., & Samborski, W. (2011). Strategy of proceeding in improving of persons with Turner's syndrome using methods of rehabilitation in the aquatic environment. *Polish Nursing, 42*(4), 207–214.
- Ozer, D., Nalbant, S., Aktop, A., Duman, O., Keleş, İ., & Toroman, N. F. (2007). Swimming training program for children with cerebral palsy: Body perceptions, problem behaviour, and competence. *Perceptual and Motor Skills, 105*(3), 777–787. DOI:10.2466/pms.105.3.777-787
- Paczyńska-Jędrycka, M., & Łubkowska, W. (2014). Edukacja zdrowotna przez gry i zabawy ruchowe z uwzględnieniem zabaw animacyjnych w opinii studentek pedagogiki elementarnej (na przykładzie województwa wielkopolskiego). *Pielęgniarstwo Polskie, 3*(53), 215–221.
- Radzimińska, A., Kos, A., Bułatowicz, I., Struensee, M., Janowiak-Maciejewska, K., Styczyńska, H., Kaźmierczak, U., & Żukow, W. (2013). Swimming as a form of active rehabilitation for patients with spinal cord injury at the C7 level. *Journal of Health Sciences, 3*(11), 233–242.
- Skalski, D., Lizakowski, P., Dębski, S., Furs, M., & Kowalski, D. (2017). *Bezpieczeństwo zdrowotne i profilaktyka prozdrowotna w działaniach administracji rządowej i samorządowej*. WSG.
- Stefańska, M., & Zawadzka, D. (2006). Assessment of force-velocity parameters of knee extensors in children with first-degree scoliosis. *Polish Journal of Physiotherapy, 6*(3), 228–232.
- Tsyhanovska, N. (2025). Proces wychowania i edukacja zdrowotna w czasach współczesnych (The process of upbringing and health education in modern times). In D. W. Skalski, N. Tsyhanovska, & B. Kindzer (Eds.), *Pedagogika i kultura fizyczna – współczesne spojrzenie. Monografia / Педагогіка та фізична культура – сучасний погляд. Монографія* (p. 30). Pomorska Szkoła Wyższa; Starogard Gdański – Charków – Lwów.
- White, R. L., Babic, M. J., Parker, P. D., Lubans, D. R., Astell-Burt, T., & Lonsdale, C. (2017). Domain-specific physical activity and mental health: A meta-analysis. *American Journal of Preventive Medicine, 52*(5), 653–666. DOI: 10.1016/j.amepre.2016.12.008
- World Health Organization. (2010). *Global recommendations on physical activity for health*. World Health Organization.
- Zatoń, K., & Zatoń, K. (2014). Aktywność fizyczna a zdrowie. *Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu, 45*, 34–40.

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