

A LUDIC HISTORY OF SWIMMING – A SYSTEMATIC REVIEW

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Abstract. People have been swimming since ancient times. It held a significant role in the development of great civilizations that were often situated near water sources. This practice, whether pursued for leisure or in a competitive athletic context, has held substantial pragmatic and educational value across continents. Initially, swimming served utilitarian purposes, ensuring the survival of people when crossing bodies of water and reducing the risk of drowning. Given its sanitary function, it was also considered a prophylactic activity, necessary to promote health and prevent health issues stemming from poor hygiene practices. Over time, swimming evolved to encompass instructional, therapeutic, and purely recreational aspects. This paper, through a systematic review of the specialized literature, presents various historical data that reveal not only the importance of swimming, but also illustrates its transformation into an Olympic sport of widespread popularity, accompanied by extensive media coverage. The paper advocates for swimming by narrating its fascinating story, and promoting it as a sport that offers multiple formative and health benefits, unmatched by any other discipline. Swimming has transcended mere relaxation, leisure, and medical recovery, emerging as an excellent way to educate young people.

Keywords: swimming; history of swimming; natation; aquatic disciplines; water sports.

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Introduction

Inherent to human existence, swimming has played a significant role across continents and throughout historical societies. As proof stand the great civilisations that originally developed along riverbanks. People have known since ancient times the beneficial effects of swimming practised for utilitarian, sanitary-hygienic, recreational, prophylactic, and therapeutic benefits (Foley, 2017).

Nowadays, swimming is part of the daily activity of a large mass of people in many countries of the world. Accordingly, this paper aims to bring to the forefront the history of swimming through the ages, highlighting pivotal milestones in the evolution of this sporting discipline.

Furthermore, we will also refer to the realm of competitive swimming, a captivating spectacle that draws many spectators both to arenas and television screens. Within this context, we mentioned the names of some world-class performers, outstanding swimmers and true role models revered not only for their remarkable performances but also for their exemplary conduct both within and beyond the swimming pool. The information presented here has been collected through an extensive review of bibliographic sources, encompassing both printed materials and electronic resources available on various information platforms.

Database search

This systematic review followed the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for the screening process of the existing bibliographical sources (Moher et al., 2009).

Searches were conducted across four databases, including Taylor and Francis Online, ResearchGate, ScienceDirect and PubMed Central. Different combinations of keywords were used to search published sources (see Table 1). Moreover, citations and references, list tracking were processed manually to identify additional relevant studies.

Table 1. *Keywords search strategy (4 databases were searched to identify eligible records by different keywords).*

| Database | Keywords |
|---------------------------|--|
| Taylor and Francis Online | Swimming OR Natation OR Aquatic disciplines OR Water sports AND |
| ResearchGate | Swimming History OR Historical perspective on swimming OR Natation AND |
| ScienceDirect | History of swimming OR Modern Olympic Games AND Aquatic disciplines OR Water sports AND |
| PubMed Central | Swimming Olympics History OR History of swimming OR Swimming performance OR Natation AND |

Inclusion and exclusion criteria for studies

Four online databases, including Taylor and Francis Online, ResearchGate, ScienceDirect and PubMed Central, were searched using different combination of keywords. 620 bibliographic sources were extracted from these databases, and ultimately 47 sources were included in this review after removal of duplicates. The eligible sources were included based on the following criteria: 1) studies focusing on research (history of swimming as a sport); 2) human studies; 3) sport related topics. Conversely, sources were excluded based on the following criteria: 1) they were non-human studies (animal studies); 2) contained sport non-related data; 3) they were not related to the specific investigated theme or not enough information was available.

A total of 620 articles were found during the literature search, in the electronic databases. After duplicates were removed, 339 records were left for further analysis. After screening the title and abstract of each of these sources, a total of 56 records were left for the full-text screening. Ultimately, 47 sources met the eligibility criteria.

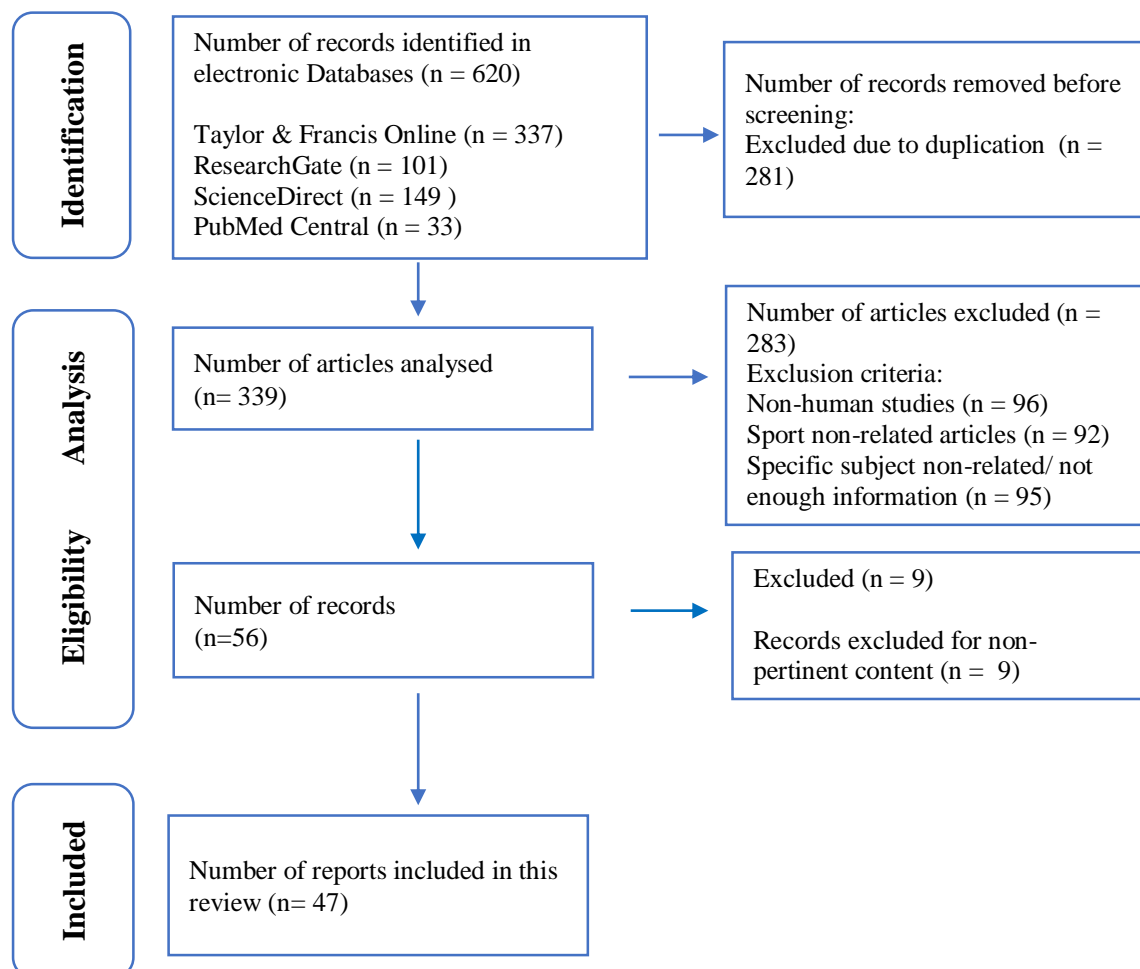


Figure 1. Identification and inclusion of studies - Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart

Literature review

Water has played an important role during human evolution, shaping our history from ancient times to the modern era. The earliest records of our interaction with water harken back to prehistoric times, when our ancestors, driven by curiosity, began to explore the riverbanks, looking for suitable places for habitation. In their daily quest to obtain food through hunting or fighting, humans found themselves compelled to swim, long before mastering the construction of boats or bridges.

Oldupai Gorge, in the Serengeti plains of northern Tanzania, Africa, is the area where hominids, the ancestors of man, appear to have originated. On these lands, there is a lake surrounded by lush vegetation, which attracted not only animals but also prehistoric people. They bathed and fished in this lake, using its water to prepare food. They survived the ice age,

left Africa, and reached Europe and Western Asia. On their way, they settled on the high terraces of rivers because water represented the primordial element for them. Later, they built boats and crossed the shallower waters that separated Southeast Asia from Australia. Man's ancestors moved to other areas of the globe with the help of the first boats. Canoes, hollowed out of tree trunks, were used for sailing and fishing.

Over the centuries, the great civilizations of Antiquity (5000 BC - 476 AD) gradually emerged and thrived in proximity to rivers.

The Egyptian civilization was established in the Nile Valley, because the river provided people with water, food and communication and transport routes. Along the Nile's shores, fishermen and farmers laid the foundation for the Kingdom of Egypt, where sailing boats were used for the first time. Bas-reliefs, hieroglyphic inscriptions, ceramic artifacts, and coins describing the aquatic locomotion technique were also discovered in Egypt. The vestiges depict people swimming freely or with the assistance of leather bladders. Both men and women swam using alternating or symmetrical movements and techniques that imitated the swimming of dogs and frogs. The papyri preserved in the tombs of pharaohs provide evidence of systematic training among the rich. They also attest to the existence of the earliest artificial swimming pools built in Thebes, Luxor, and Memphis.

In the Cave of Swimmers, located in the mountains of Gilf Kebir (Libyan Desert, Sahara), the first images were found with small human figures, in postures that may easily recall swimming. This ancient rock art was first brought to popular attention by David Roberts' book, *The Cave Painters (Keck Caves, n.d.)*.

The Indian civilization flourished along the banks of the Indus River (Carr, 2002). The education of nobles included physical activities such as jumping, fighting, running, and swimming. The earliest written Indian laws, the Laws of Manu, endorsed swimming in lakes or rivers to maintain both physical and mental health, though it was forbidden for relaxation purposes (Carr, 2002).

The practice of swimming by the inhabitants of India in those ancient times is also documented in the Jain Sutras, a collection of aphorisms condensed in a manual or a text (Carr, 2002). Thus, rich fishermen and farmers, who knew how to swim, lived in the Indus River Valley showing respect for water and physical activity.

Swimming was also known in ancient China (initially concentrated in the Yellow River Valley). Evidence of this can be found in the use of the word 'swimming' within verses from the Book of Songs, an early collection of poems and writings from the pre-Qin period (Avramidis, 2011). Moreover, swimming played a very important role especially in military training, being considered a strategic weapon (Courtivron, 1824, cited in Pelayo & Alberti, 2011). Soldiers were required to swim for hours wearing their equipment, and at the royal court, nobles took part in demonstrations of swimming and high-diving.

The first great European civilizations blossomed around the Mediterranean Sea. The Minoan population, from the island of Crete, and the Mycenaean population, settled on the plains of Argos in eastern Greece, gave swimming a special role, as they acquired great wealth through maritime trade. Goods were transported by galleys, large ships with two rows of oars, made of cedar logs. As these navigators were selected from among the most skilled swimmers, young people learned various swimming techniques.

After the disappearance of the Minoan civilization following a powerful earthquake and the decline of the Mycenaean civilization, ancient Greece developed as an association of city-states. Two of the most important were Sparta (a warrior state) and Athens (a commercial and cultural state), which fought for supremacy during the Peloponnesian Wars. Since continental Greece has shores bathed by the Adriatic, Aegean and Mediterranean seas, and the rest of the country consists of islands, the Hellenes assigned swimming a pivotal role in the education of young people. In both Sparta and Athens, education was worshipped as an essential quality of every worthy citizen, with a particular emphasis on swimming, especially among the Spartans. To disparage someone in that society, it was said: *He can neither read nor swim* (Demyanova et al., 2020).

The earliest written records documenting the practice of swimming also originate from Greece. In the epic poems *Iliad* and *Odyssey*, Homer talked about swimming (McVicar, 1936) but without describing the way of moving through water. At that time, the swimming technique was taught in gymnasiums as an integral component of education. Attention to swimming was also reinforced by the negative attitude of the Greeks towards those who could neither run nor swim.

In temples, the *kolymbethra* was an integral part of public education institutions. The trainers, known as *paidotribes*, ensured the learning of swimming by attaching bundles of reeds, pieces of cork, or bellows to the students' bodies. Swimming was also practised in open water, where young people used to dive and fish for sponges, corals, or oysters. Those who excelled as divers were recruited for service in the merchant or military navy.

Sports and games were very important in ancient Greek culture. The most famous sporting event, the ancient Olympic Games, took place every four years in honour of Olympian Zeus. During these Games, sports discipline was strict, and breaking the rules was severely punished. Like the Romans, the Greeks did not organize swimming competitions. Although historian Pausanis mentions a swimming competition held in ancient Greece, swimming was excluded from the athletic program due to the absence of a swimming pool in Olympia (Lewin, 1979).

The genesis of the *Eternal City*, Rome, on the banks of the Tiber river, was the result of the establishment of a strong Latin community. The first public baths date back to those times. The baths (*thermae*) were buildings with intricate architecture and had comfortable, well-heated, dry and wet rooms, called *saunas*. They also had pools with warm water for swimming and cold water for diving. The floors were elevated on support-poles to allow the hot air from the fire to warm the rooms. There were also outdoor pools, where soldiers underwent training for military campaigns, and practised swimming wearing their equipment.

The patricians taught their children to swim, and the poets glorified the characters of the time that had saved their lives by swimming. Prominent figures such as the empress Agrippina, Nero's mother, and military generals like Scipio Africanus and Sertorius were celebrated for their swimming prowess. Julius Caesar, the ruler of the Roman world, was a proficient swimmer. He organized swimming lessons for the military, which included crossing rivers on horseback and simulating naval battles. His mastery was surpassed by his nephew and adopted son, Octavian Augustus, who organized swimming displays involving numerous soldiers trained through special courses.

Like the Greeks, the Romans did not organize swimming competitions. However, nautical festivals were organized in Ostia, because swimming was very popular and represented a way

of spending free time (Colwin, 1992). The pleasure of swimming led the Romans to build artificial pools within the thermal baths, some of which were supplied with warm water. The pools from the time of Nero (38/28 m), Caracala (55/20 m) and Diocletian (100/50 m) are famous.

In ancient Japan, swimming was very popular (Avramidis, 2011), serving as an integral component of youth education and a crucial element of military training. Swimming and bathing were the prerogatives of the noble caste. Consequently, many prominent leaders of the Eastern world, whose residences are now museums, featured swimming pools on their premises.

In Central and South America, Native Americans practised swimming as a current activity to procure food, as well as a part of their motor and recreational activities (Carr, 2002). As part of religious rituals, the Chibcha Indians of Colombia purified themselves in water and swam to ward off evil spirits. However, there is no evidence of the swimming technique used in that part of the world (Colwin, 1992). The Mayan civilization also practised swimming and diving, supported by archaeological findings in Guatemala and Belize that confirm their proficiency (Carr, 2002). Swimming and diving were also practised in the South by the Mayan civilization, being mainly used as means for procuring food (Carr, 2002).

After 400 AD, the dissolution of the once-dominant great empires ushered in a period of uncertainty in the ancient world. Ancient Rome displayed an inexplicable reluctance towards physical exercise, a trend that intensified during the Middle Ages. By then, swimming was unpopular, and perfumes were created to mask unpleasant odours. Only the intellectual elite, physicians and poets of Rome continued to recommend swimming. In this context, the satirical poet Juvenal remarked that a sound mind should reside in a healthy body. The gradual disintegration of the Roman Empire led to the moral decay of society, transforming once-respected baths into dens of debauchery that were subsequently abandoned and left in ruins.

Up until the year 1000 AD, Europe was frequently attacked by Germanic barbarian groups such as the Vandals, Vikings, and Anglo-Saxons, who often launched attacks from the water. These invaders were good swimmers, as evidenced by numerous stones engraved with runes (the letters of the Viking alphabet that were carved in stone, wood, or metal, which the Varangians believed to have supernatural significance (Cirlă & Grecu, 2004).

Feudalism emerged in Europe between 1000 and 1200 AD, providing stability after the fall of the Roman Empire. Religion and the desire for land ownership reinforced military service and multiplied sea pilgrimages. In northern and central Europe, where there were many lakes and rivers, swimming was preferred to other sports activities. Knights and lower-ranking nobles considered it a *component of the training programme*. To earn their knighthood, young men were required to demonstrate their virtues through skills like riding, swimming, spear-throwing, fencing, and hunting. However, as nudity was considered immoral, the church gradually prohibited swimming and bathing in public places (Colwin, 1992), and those who broke the law were severely punished. Consequently, the neglect of personal hygiene caused countless recurrent epidemic diseases, such as plague, cholera, etc. Only in Europe, the diseases of misery killed on average one out of three inhabitants between 1346 and 1353.

Sea voyages were pilgrimages of penance to holy places or functional journeys undertaken by sovereigns to control their vassals. There were also trips specific to nomadism, organized by barbarian migratory waves or trips of “seafaring peoples” in search of trade routes and

uncharted lands. The adventurous sailors of these eras were skilled swimmers, as they needed to face both the vagaries of the sea, and defend against pirate attacks through swimming.

During the Renaissance, physical exercise once again enjoyed increased attention. In the anthropocentric perspective of those times, man was a dynamic, healthy, and harmoniously developed being who practised various forms of movement, but the first strides in the art of swimming were taken much later. The first swimming book, titled *Dialogue about the Art of Swimming (Colymbetes, Sive De Arte Natandi: Dialogus)* was published in Inglostadt in 1538 (Colwin, 1992). The author of this manual, Nikolaus Wynmann, considered swimming as a modern form of physical training. The main purpose for publishing this book was to reduce the risk of drowning rather than providing an in-depth description of swimming techniques or methods of instruction. However, the manual did offer a methodical sequence of learning breaststroke, along with the use of aids during training (inflated cow bladders, tied cane or cork lifebuoys). According to Lidstrom and Svanberg (2019), these aids were used for a long time and were widespread in those days.

The Age of Enlightenment, which took root in England towards the end of the 16th century, had a great contribution to the spread of swimming as a means of physical training. During that period, English miners promoted the spread of swimming-related technical knowledge, which is why they are considered the “fathers” of modern swimming.

In 1696, the French author Monsieur Thevenot wrote the book *L'Art de Nager (The Art of Swimming)*, which was translated into English three years later. There, swimming was described as an old but unexplored sport, which made it difficult to improve (Colwin, 1992). Recognizing its value, the book was reprinted in 1764 and 1772, and Monsieur Thevenot was inducted into the International Swimming Hall of Fame in 1990. The swimming technique depicted by Thevenot and used in that period was the breaststroke with the head above the water (the legs performed the breaststroke kick with the tips pointed inwards).

At the beginning of the 19th century, the breaststroke kick with the ankles flexed and the tips pointing outwards was adopted. Propulsion was achieved by pushing against the water with the soles of the feet (Counsilman, 1968, cited in Colwin, 1992). The way of using the soles of the feet in the breaststroke kick raised numerous discussions, marking the earliest debates on swimming technique (Colwin, 1992).

The industrial revolution and the expansion of capital led to the opening of the first indoor swimming pools in 1760 (Paris) and in 1774 (Frankfurt am Main).

In 1797, Bernardi explained the *method of learning to swim without aids*, believing that vertical floating was good for learning aquatic breathing. The method was developed by Gutz Mutz who published *The Little Guidebook for Learning to Swim*, in 1798. The book presented three accessible steps to learn swimming, which are valid even nowadays: step I - getting used to the water; step II - performing swimming movements on dry land; step III - performing swimming movements in the water. Some educators developed the methodology of this sports discipline. Thus, Ladeseck described the learning of the backstroke in the *Swimming School*, and Wirssner described the method of teaching various swimming techniques tailored to schoolchildren according to their age group (Cirlă & Grecu, 2004).

Topic Addressed

Swimming as a sports activity

Swimming evolved into a professional sport in the second half of the 19th century, as most of the sport's fans learned to appreciate the efforts of amateur competitors, as well as the show that they brought in alongside. The aforementioned trend can be attributed to a combination of factors, including the industrial evolution, new hydrodynamic equipment, case studies on stroke biomechanics, the construction of modern pools, the increase in popularity of this discipline and its fanbase.

"This range of activity provided scope for a number of professionals who were able to earn a living through combining teaching, performance and self-publicity" (Hayes, 2009).

The development of swimming as a sports discipline relates to the development of capitalism in Great Britain (Myerscough, 2012; Day & Roberts, 2021).

The first swimming competitions took place in the "homeland of modern swimming" in 1837. The National Swimming Society regulated the conduct of these competitions, which were mainly organized in London.

During that period, numerous significant developments occurred in the world of swimming, such as the first World Championship in the 100-yard race, held in 1858 in Australia. Also, in 1869, the first national championships were organized in England. In 1875, Matthew Webb of Great Britain was the first person to swim across the English Channel. Webb made the crossing from Dover (England) to Calais (France), where the channel was more than 21 miles (34 km) wide. This has decisively contributed to increasing interest in *swimming as a competitive activity*. The first US Championship was held in 1877, and the first European Championship was organized a few years later, in 1889, at the "Erste Wiener Amateur-Schwimm-Club" pool. This edition included two events: the 60 m race (the best time was 58 sec) and the 1500 m race.

In London, the Swimmer's Life Saving Society was founded in 1891, and in 1899 France hosted its first championship (Love, 2007). On March 3rd, 1896, the Amateur Swimming Association was established (Day, 2010). In 1908, the main international body that controls swimming competitions, *FINA* (International Amateur Swimming Federation), was established in London. Initially, ten national associations became members of this governing body. As of 2022, FINA has been reorganized and is now known as World Aquatics, comprising more than 200 federations (World Aquatics, 2022). Additionally, *LEN* (European Swimming League), founded in 1927, is affiliated with World Aquatics.

The sports branches that have developed over the years and are today under the coordination of Water Aquatics are shown in Figure 2.

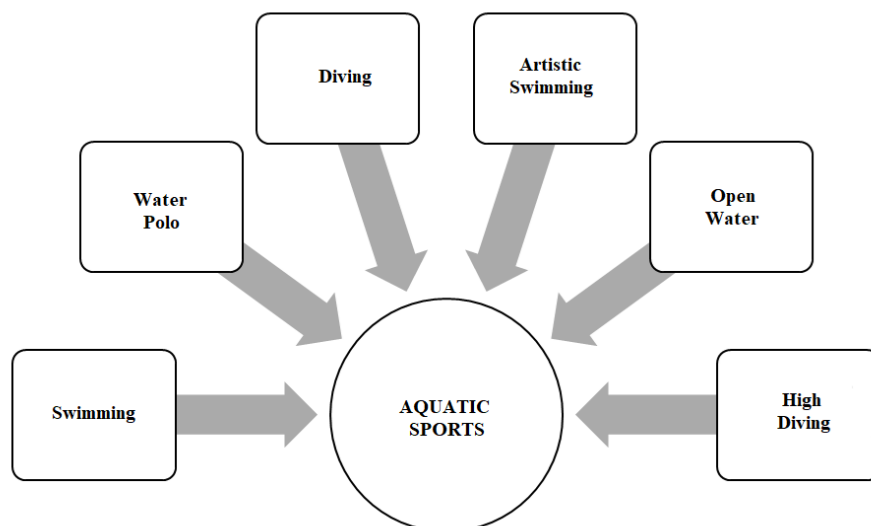


Figure 2. Aquatic sports

Currently, five out of the six branches mentioned above are included in the Olympic program. Swimming has been a part of the Olympic Games since their inaugural edition in 1896 (where only male participation was allowed). Water polo was included in 1900 for men and later in 2000 for women. Diving has been featured since 1904, synchronised swimming since 1984, and open water swimming since 2008. We anticipate that in the coming years, high diving will also join the Olympic family. This addition would allow thrill-seekers and enthusiasts of extreme sports to watch and enjoy the experiences induced by the spectacular performance of swimmers.

Development of swimming strokes

In 1844, London hosted a swimming competition in which several American athletes participated. While the English swimmers used the breaststroke with the head above the water and the tips pointing inwards, the Americans used a front crawl variant in which the arms moved like a mill and the legs kicked vertically. Colwin (1992) mentions that this aquatic locomotion technique was used by the inhabitants of the two Americas, West Africa, and some Pacific islands. Afterwards, swimmers tried to increase the effectiveness of their strokes because there were no different techniques, each athlete swimming the competition distance as they thought to be more efficient. This was possible until 1906 when the differentiation of breaststroke swimming techniques began (Counsilman, 1968, cited in Colwin, 1992).

The first technique that emerged was the front crawl, but several variants existed until reaching the current technique of this stroke (Figure 3): sidestroke - breaststroke on one side; overarm sidestroke - the breaststroke kick was replaced by a scissors kick; Trudgen stroke - lying on the chest with the head out of the water, the arms were alternately brought forward above the water, and the legs performed a breaststroke kick for every arm cycle (right - left); double overarm sidestroke - the legs performed a lateral scissors kick concurrently with an alternating arm stroke; the head was out of the water, and the shoulders were rigid; *Australian*

crawl - used the coordination with four leg kicks for one arm cycle, which was replaced by the coordination with six leg kicks for one arm cycle (introduced by the Americans).

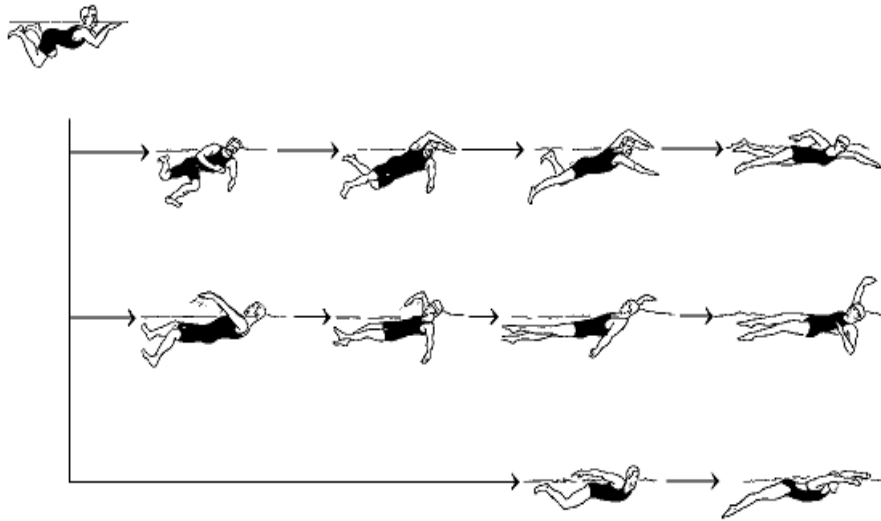


Figure 3. Development of swimming strokes (Colwin, 1992)

The backstroke involved lying flat on the back in the water while performing a leg kick similar to the one used in the breaststroke, and the arms performed a top-down movement through the water following an outward and lateral path - popular backstroke. This technique was at the origin of the English backstroke (Lewin, 1979) where the leg kick remained unchanged but the arms pushed the water towards the thighs, after which they simultaneously moved back above the water to restart a new movement cycle. The Americans replaced the described technique with the back crawl where the legs performed a top-down scissors kick, and the arms were extended into the water and pulled back above the water with the elbows flexed (Colwin, 1992). In the 1930s, the backstroke technique was improved in the sense that the arms were kept outstretched during both the aquatic path and the return phase, but they moved to a 45-degree angle relative to the surface of the water. Later, the Australian swimmers perfected the technique by flexing their arms on the aquatic path and bringing them back above the water at a 90-degree angle relative to its surface, which led to an increase in speed. This technique is still used today.

The basic characteristics of the breaststroke technique have undergone minimal changes in the centuries following its revival by Thevenot (Colwin, 1992). The long lateral arm pull has been replaced with a shorter one, which increased the frequency of strokes.

In 1933, the Americans proposed *a new variant of the breaststroke*, which consisted in simultaneously bringing the arms forward above the water. For two decades, both variants were practised, with the possibility of alternating them during a race. This exercise caused much controversy. In 1948 the FINA Congress decided to separate the two events, but the IOC's decision not to increase the number of events in the Olympic swimming competition program prompted a reconsideration by the world-governing body. Discussions that ensued during the 1952 FINA Congress ultimately led to the separation of breaststroke from the butterfly style,

which was considered a third stroke derived from breaststroke. This separation was also noted by Hołub et al. (2021).

In 1935, the American swimmer Sieg introduced a modified breaststroke with a new kick resembling the movement of a fish's tail. Despite its significantly increased speed compared to the simultaneous leg kick, this technique was not allowed because it violated the rules pertaining to vertical leg movement.

The 1950s brought a new change in breaststroke swimming. Since breathing above the water causes athletes to slow down, underwater swimming gained prominence. By introducing new rules (1957), FINA limited the underwater swimming distance after both the start and each turn to only one full arm stroke and leg kick allowed under the water.

The start has undergone a number of changes until reaching its current form. According to Lewin (1979), athletes "started" the race from the water during the first swimming competitions. The start was introduced in 1912 by members of the Deutscher Schwimmverband (German Swimming Association). Since 1920, the Germans have used the start from the edge of the pool for all swimming strokes; four years later, the backstroke race started again from the water. Over time, the start has been improved, and nowadays it plays a very important role especially in speed events, where a correct start can make the difference between winning or losing a race (Hartel & Schleichardt, 2008).

The start command has also undergone numerous changes. Currently, it is an acoustic signal (the starter's command "Take your mark," followed by a loud noise, usually a beep or a horn, signalling the start of a race).

Swimming turns have gradually developed from those performed by grabbing the edge of the pool (which was used years ago) to the flip or tumble turns practised today (Bălan, 2015). Swimmers must touch the wall with one hand or two hands (depending on the swimming style) or with another part of the body (in the crawl stroke and backstroke).

Performers at the Olympic Games

As swimming gained widespread popularity, it did not take long for the first performers, whether fearless individuals or established athletes with amazing achievements, to make their marks. Obviously, not all these extraordinary sports performances have endured in the memory of swimming enthusiasts, but they are preserved today in various archives. Certainly, some of these feats have faded into obscurity or have been "overshadowed" by subsequent athletes, as statistics generally mention the outstanding contemporary athletes. From the unmatched Leander, who swam across the Hellespont (Dardanelles Strait), to icons like Michael Phelps, and from Iosif Novak to Diana Mocanu, Camelia Potec and David Popovici, many athletes have etched their names in the annals of international swimming history.

Since it is impossible to list all athletes and their sports achievements, we will only highlight the best athletes' performance at the Olympic Games, as it is the most important competition (Stanula et al., 2012; Jensen et al., 2014), requiring 4 years of training. The revival and internationalisation of the Olympics in the *modern era* but also the new philosophical structure made swimming acquire a well-defined status in 1896. It was one of the first sports featured at the modern Olympic Games held in Athens, Greece. At this inaugural edition, the participation of female swimmers was prohibited (Parker, 2010), and male athletes swam in the sea, in the

port of Piraeus. The first Olympic medallist was Alfréd Hajós (Hungary), winner of both the 100 m (1:22.2) and 1200 m freestyle (18:22.0) races. Among the 13 participating swimmers, the representative of the host country, Ioannis Malokinis, stood out by winning the Olympic gold in the 100 m freestyle swimming for sailors event (where competitors swam wearing their sailor suits). However, this event was not organized again later).

In 1900, the Olympic Games were held in Paris, and the swimming events took place on the Seine. In the Olympic competition that was announced as the “World Championship”, Australian Frederik Lane won the 200 m freestyle (2:25.2), Englishman John Jarvis, the 1000 m freestyle (13:40.2), and German Ernst Hoppenberg, the 200 m backstroke (2:47.0).

In 1904, at the Olympic Games held in St. Louis, Missouri, Hungarian Zoltán Halmay won both the 100 m (1:02.8) and 50 m freestyle (0:28.0) races. The swimming performance recorded by the US team (Hodler & Smith, 2022) marked the beginning of an era of American dominance that lasted until the 1930s. The American swimmer Charles Daniels won the 200 m (2:44.2) and 400 m freestyle (6:16.2) races. Daniels (1885-1973), who won 5 gold medals at the Olympics (1904, 1908), contributed to improving the crawl technique by the *hand-over-hand crawl stroke*, thus developing the swimming speed and leading *freestyle swimmers* to choose the crawl stroke for all these races.

Women’s swimming became an Olympic sport in 1912 at the Olympic Games in Stockholm, Sweden, where Australian Fanny Durack won the first gold medal in the 100 m freestyle (1:22.2) race.

At the same edition, the American swimmer Duke Kahanamoku won the men’s 100 m freestyle (1:03.4) race, repeating the victory (1:00.4) at the 1920 Olympics in Antwerp, Belgium. He was a member of the relay team that won the 4 x 200 m freestyle (10:04.4) race.

As early as 1918, immediately after the end of World War I, crawl swimmers tried to go under the 1-minute barrier. The first swimmer to record this victory was Johnny Weissmuller (an athlete of Romanian origin), with 0:58.6 in the 100 m freestyle competition held in July 1922 in Alameda, California.

At the 1924 Olympic Games, in Paris, Weissmuller won the 100 m freestyle competition with a new Olympic record, 0:59.0, while Kahanamoku was the runner-up. At the same edition, Weissmuller also won gold medals in the 400 m freestyle (5:04.2) and the 4 x 200 m freestyle relay race (9:53.4). In women’s swimming, Americans Ethel Lackie and Martha Norelius won gold medals in the 100 m (1:12.4) and 400 m freestyle (6:02.2) races, respectively. In the 4 x 100 m freestyle relay (4:58.8), Lackie and her teammates Euphrasia Donnelly, Gertrude Ederle and Mariechen Wehseleu won the gold medal. Gertrude Ederle was the first woman to swim across the English Channel (Knechtle et al., 2020), in 1926, covering the 34 km that separate Cap Gris-Nez (France) from Dover (England) in 14 hours and 31 minutes, thus breaking the previous record of 16 hours and 23 minutes.

In 1928, at the Olympic Games held in Amsterdam, Netherlands, Weissmuller repeated his victories in the 100 m (0:58.6) and 4 x 200 m freestyle (9:36.2) competitions. He later became an actor, being very popular in the role of Tarzan (Pop, 2013).

Japanese swimmers put an end to the American dominance by winning six of the seven men’s events at the 1932 Olympics held in Los Angeles, California. Buster Crabbe, one of the most famous swimmers of that time, won the only gold medal for the US team in the 400 m

freestyle (4:48.4) race. American female swimmers continued to be successful. Among them, Eleanor Holm and Helene Madison were the best.

Swimming became even more popular in the United States in the 1940s and 1950s, partly due to Esther Williams, an American swimmer and actress (Pullen, 2010). As the Olympic Games were suspended during World War II (1939-1945), Williams never had the opportunity to be in an Olympic competition. Nevertheless, left an indelible mark by starring in numerous films that featured aqua ballet, swimming, springboard diving, and water skiing.

From the end of World War II until the 1960s, Australian swimmers such as Murray Rose, Jon Konrads, David Thiele and Dawn Fraser achieved remarkable success. Dawn Fraser is considered the most complex female swimmer of modern times, as she became the first Olympic champion to win the same event in three consecutive Olympic competitions. She won gold medals in the 100 m freestyle competition in 1956 (Melbourne), 1960 (Rome) and 1964 (Tokyo).

After 1970, American men's swimming and East German women's swimming return to the forefront in the Olympic competitions. At the 1972 Olympics in Munich, Germany, American Mark Spitz generated one of the greatest sporting celebrations in the history of the Games, winning 7 gold medals (all new world records) in the 100 and 200 m freestyle, 100 and 200 m butterfly, 4 x 100 m relay, 4 x 200 m freestyle and 4 x 100 m medley races. Spitz remained the only swimmer to win 7 gold medals in a single edition of the Olympic Games until 2008, when he was surpassed by Michael Phelps.

Roland Mathes from East Germany was the revelation of the host country at the 1972 Olympics, winning the backstroke, 100 m (0:56.58) and 200 m (2:02.82) freestyle races. These exceptional results continued his performance achieved at the previous edition of the Games (1968), when he also won the Olympic gold in the aforementioned events.

American swimmers John Naber and Bruce Furniss were two stars of the 1976 Olympics in Montreal, Canada, while East Germany won almost all the gold medals in the women's competition. Kornelia Ender (East Germany) won 5 gold medals, breaking numerous records together with her teammates, and missing the victory in only two of the 14 events for female swimmers.

In 1972 and 1976, American women's swimming won 8 Olympic medals (2 gold and 6 silver) through Shirley Babashoff. Also, in 1976, Jim Montgomery (USA) broke the 50-second barrier in the 100 m freestyle with a time of 0:49.99.

The 1980 and 1984 Olympic Games held in Moscow and Los Angeles, respectively, were boycotted by many countries, which is why some valuable athletes did not compete. However, the outstanding performers of these Olympics were Vladimir Salnikov (Russia), Barbara Krause (East Germany), Michael Gross (West Germany) (with two gold medals in the butterfly events), Rowdy Gaines (USA) and Mary T. Meagher (USA) (with 3 gold medals in the butterfly and medley relay events of 1984).

The 1988 Olympic Games in Seoul, South Korea, were dominated by Kristin Otto (East Germany) who won 6 gold medals, thus becoming the female athlete with the highest number of gold medals at the same edition of the Games. The beloved American swimmer Janet Evans made her debut in Seoul where she won 3 Olympic gold medals (she had also won an Olympic gold medal in 1992 in the 800 m freestyle event). On the other hand, the men's competition was dominated by the remarkable American swimmer Matt Biondi who won 5 gold medals (11

Olympic medals, including 8 gold, throughout his career). It is worth noting the result achieved by Anthony Nesty from Surinam, who became the first black Olympic champion, winning the 100 m butterfly event (0:53).

In the late 1980s and early 1990s, swimming was dominated by Aleksander Popov from Russia and Krisztina Egerszegi from Hungary.

At the 1992 Olympic Games in Barcelona, Aleksander Popov won gold medals in the 50 m (0:21.91) and 100 m freestyle (0:49.02) events. He repeated this victory at the 1996 Olympics in Atlanta, Georgia.

Krisztina Egerszegi is the second female swimmer in history to win the same event at three editions of the Olympic Games: 200 m backstroke in 1988, 1992 and 1996. She also won the Olympic title in the 100 m backstroke (2:07.83), and 400 m individual medley (4:36.54) in 1992, as well as two more medals in 1988 and 1996.

The 1996 Olympics were dominated by an American female swimmer, Amy Van Dyken, who won 4 gold medals (50 m freestyle - 24.87, 100 m butterfly - 59.13, 4 x 100 m freestyle - 3:39.29 and 4 x 100 m medley - 4:02.88), and the Irish Michelle Smith, who won gold medals in the 400 m freestyle (4:07.25), 200 m medley (2:13.93) and 400 m medley (4:39.29) events.

Ian Thorpe was one of the undisputed champions of the 2000 Olympics held in Sydney, Australia, where he won 3 gold medals and 2 silver medals. Other swimmers who made history at this edition of the Games were Peter van den Hoogenband (Netherlands), who won the Olympic gold in the 100 m (0:48.3) and 200 m freestyle (1:45.35), Lenny Krayzelburg (USA), who won gold medals in the 100 m (0:53.72) and 200 m backstroke (1:56.76), as well as the 4 x 100 m medley relay (3:33.73). In the women's competition, the Dutch Inge de Bruijn won 3 gold medals in the short freestyle and butterfly events.

The most contested race was the 50 m freestyle, where two Americans shared the first place: Antony Ervin and Gary Hall Jr. They touched the electronic time device at the same moment, recording an identical score: 0:21.98 sec. At this edition, the great Michael Phelps made his debut in the Olympic competition and finished fifth (Hodler, 2018) in the 200 m butterfly final.

At the 2004 Olympic Games, Michael Phelps won 6 gold and 2 bronze medals, Peter van den Hoogenband won the 100 m freestyle, Gary Hall Jr took the gold medal in the 50 m freestyle, and Ian Thorpe took 2 gold, 1 silver and 1 bronze medals.

At the 2008 Olympic Games in Beijing, China, Michael Phelps won 8 Olympic gold medals in the 200 m freestyle, 100 and 200 m butterfly, 200 and 400 m medley, 4 x 100 m medley, 4 x 100 m freestyle and 4 x 200 m freestyle. In the women's competition, the athletes who won gold medals and set world records were Federica Pellegrini (Italy) - 200 m freestyle, Rebecca Soni (USA) - 200 m breaststroke, Rebecca Adlington (Great Britain) - 800 m freestyle, Kirsty Coventry (Zimbabwe) - 200 m backstroke, Stephanie Rice (Australia) - 200 and 400 m medley, Liu Zige (China) - 200 m butterfly.

At the 2012 London Olympics, Michael Phelps won 4 more Olympic gold medals, just as Missy Franklin (USA), while Ranomi Kromowidjojo (Netherlands) and Ye Shiwen (China) won 2 gold medals, each in the 50 and 100 m freestyle, and the 200 and 400 m medley, respectively, in the women's competition.

In 2016, at the Olympic Games in Rio, Brazil, Michael Phelps returns to the Olympic pool to win 5 more gold medals, amassing an incredible number of Olympic medals, 28, of which 23 gold, 3 silver and 2 bronze. Katie Ledecky (USA) won 4 gold medals (200 m, 400 m, 800

m and 4 x 200 m freestyle events), in addition to the medal won at the 2012 London Olympics in the 800 m freestyle. Katinka Hosszu of Hungary secured 3 gold medals and 1 silver medal, completing an impressive collection of trophies earned in major competitions since 2004.

At the 2020 Olympics in Tokyo, Japan, the American swimmer Caeleb Dressel won 5 gold medals (50 and 200 m freestyle, 100 m butterfly, 4 x 100 m freestyle and 4 x 100 m medley). In the women's competition, Katie Ledecky (USA) won two more gold medals (400 and 800 m freestyle; the third female swimmer in history to win the same event at three editions of the Olympic Games: 800 m backstroke in 2012, 2016 and 2020), and Australian athletes won 8 of the 17 gold medals up for grabs.

Consequently, the coming together of elite swimmers gave rise to a fascinating level of competitiveness. Over time, legendary rivalries emerged, which kept the highest interest in swimming competitions and sparked the attention of major powers and high-profile swimming schools (American, Australian, German, and Soviet) for the following decades. Moreover, these rivalries cast a spotlight on numerous ambitious countries keen to prove their mettle in the sport. Through elite training programs and unwavering perseverance, athletes from these nations managed to bring down redoubtable political systems to which they belonged. More than a few times, these rivalries began between swimmers of same nationality, regardless of their styles, and sparked at the border between sprint and endurance races.

Backtracking, we can observe that most rivalries extended over the course of years, period in which renowned swimming competitions were held (Olympic Games, World Championships, etc.).

Amongst notorious duels we have „those between Ian Thorpe and Grant Hackett, Michael Phelps and Ryan Lochte, and Jenny Thompson and Dara Torres. Swimming has showcased some of its top athletes competing face to face, challenging each other in ways that captivate their fans” (De George, 2013).

Discussion

Since old times, humans have been near water to procure food, defend their homes or communities, exercise their muscles, and maintain the physical condition necessary for daily activities.

In the ancient world, swimming was part of an education system that turned the *ephebe* into a perfect athlete, who could face the physical, mental, and intellectual demands of those times. Over time, swimming became a means of military training, being a mandatory component in the education and training of soldiers. Prohibited by the church in feudalism because it was considered “immoral” during that period, swimming returned to everyone's attention in the idea of promoting *physical education through movement* (14th-16th centuries). In the 17th century, swimming becomes a means of training, being appreciated not only by the greats of those times but also by ordinary people.

Gradually, swimming also penetrated other fields, the writings of major authors of the time talking about swimming and subsequent achievements induced by its practice and techniques. Moreover, swimming (and sport in general) was used by some states as a tool for increasing popularity and political prestige (Hołub et al., 2021; Chan, 2016).

The benefits of swimming have been fully confirmed since the 20th century by studies conducted all over the world, which highlight the benefits of moving in water on health and well-being (Gotoh et al., 2008; Hinrichs et al., 2010; Baker et al., 2010; Kaczan, 2019). Furthermore, the possibility of swimming in indoor or outdoor pools with fresh or salt water and of practising swimming simultaneously with nautical sports brings added value to human well-being (Gotoh et al., 2008), and this cannot be found in any other combination of sports disciplines.

It is important to recall the presence of swimming in multidisciplinary sports (Heck, 2011, Santana-Cabrera & Santana-Martin, 2015) where swimming harmoniously combines with other sports disciplines (triathlon – Bales & Bales, 2012, Knechtle et al., 2014; Hunt, 2019; short distance triathlon – Etter et al., 2013, Ironman triathlon – Barbosa et al., 2019; modern pentathlon - Heck, 2011, Robinson et al., 2022) or the role of specific skills of floating and gliding on water, which are important for the exercise of certain jobs (the practical/utilitarian value of swimming) or the practice of nautical sports.

Nowadays, swimming has become part of a real social phenomenon, being a sport with vast implications at global level. The aquatic environment enables all people, regardless of age, gender (Chinurum et al., 2014; Conti, 2015), limitation of movement ability, social category, etc., to participate in specific activities, meet, communicate, and integrate into the sports group, and top swimmers are true societal role-models, with a great power of attraction and influence for the younger generation.

With the revival of the modern Olympic Games and the establishment of national and international swimming federations, combined with advancements in aquatic locomotion techniques, swimming has earned a distinguished place among contemporary disciplines. From the early pioneers to the modern athletes, they have all struggled to perfect their techniques and improve their athletic performance in pursuit of excellence. The emergence of Masters competitions, open to anyone capable of swimming (Pike, 2012; Bowness, 2020), has provided an accessible avenue for even the least experienced swimmers to continually enhance their swimming abilities. This allows them to first challenge themselves and then engage in competitions with others.

Conclusion

This paper aimed to advocate for swimming by exploring its captivating story, in an attempt to promote this sports branch with multiple formative and health benefits, unmatched by any other discipline.

The exhilarating sensations of swimming and the desire to engage with nature for recreational, hygiene, or therapeutic purposes have been known to humanity since ancient times. Therefore, the necessity and enjoyment of swimming have elevated the essence of this activity to what we now call “the art of swimming”. Over time, sports competition became an integral part of the diverse ways in which swimming is practiced, infusing this expression with a spectacular and vibrant character. Thus, *swimming transcended its role as merely a means of relaxation, leisure, or medical recovery, evolving into an excellent way to educate young people.*

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