

Ancient History of Sports Medicine

Sports undoubtedly began as a means for primitive humans to hone their hunting and combat abilities, essential for survival and safeguarding their families and tribes. Over time, as leisure became more accessible, these activities evolved into competitive events pursued for enjoyment, leading to the development of athletic contests. Gradually, many new games and exercise modalities like boxing in Egypt (5000 BC), weightlifting exercises (3600 BC), and chariot racing in Greece (1500 BC) were developed. With this development began sports and exercise-related injuries. The first documented sports injury is in the book of Genesis: “And Jacob was left alone; and there wrestled a man with him until the breaking of the day. And when (the man) saw that he prevailed not against (Jacob), he touched the hollow of his thigh; and the hollow of Jacob’s thigh was out of joint as he wrestled with him.” We have here the first contest and the first-ever injury, although no mention of treatment is included [6].



Figure 1: Young girl winning chariot race, engraving from red-figure Greek vase. Source [2].

The first recorded use and consideration of exercise as a treatment or therapy belongs to the Indians in the Atharva Veda (1500 BC) and to the Chinese in the book of Kung Fu or Gung Fu (1000 BC). In the Western world, the first man associated with therapeutic exercise was Herodicus around the 5th century BC, a contemporary of Socrates. Belonging to the Greek city of Selymbria, Herodicus was probably one of the tutors of Hippocrates, who helped develop the ethical system of medicine expressed in the Hippocratic oath and is often called the father of medicine [7]. Some scholars believe that Hippocrates was influenced by Herodicus due to his attention to hygienic exercise [3]. Herodicus is recognized as the pioneer of therapeutic gymnastics. He observed that the strength of wrestling and boxing athletes improved significantly when subjected to intense physical training. This realization inspired him to advocate exercise not only as a remedy but also as a preventive approach to combat illness [3]. To Herodicus, preserving health was just as vital as restoring it. His pioneering approach of integrating physical exercise with medical treatment laid the foundational principles for sports medicine, so he is widely recognized as the father of sports medicine [12].

In the Western world, the significant development of exercise and sports culture occurred in Greece, one of the most ancient civilizations. Physical education was considered a necessary component of a Greek youth’s training and upbringing. The gymnasium served as their schoolhouse, and that concept is echoed in Germany, where, even today, secondary school is also known as the Gymnasium. Additionally, athletic competitions became a prominent feature of Greek culture [14]. Initially, those contests were tied to religious ceremonies, but eventually, those grew into standalone events. The most famous was the Olympiad held every 4 years in honour of Zeus at Mount Olympus. Remarkably, the first recorded date in the Western calendar corresponds to the Olympiad of 776 B.C. The game winners soon achieved a status similar to today’s professional athletes. Many times, athletic achievements used to elevate the social class of athletes by enabling them to become a coach

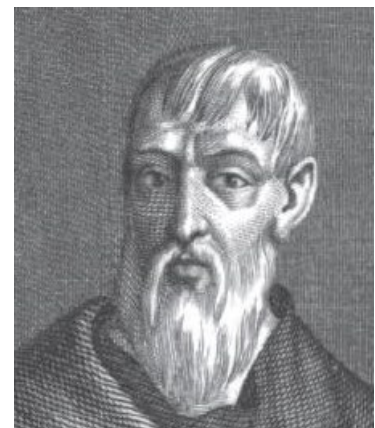


Figure 2: Herodicus. Source: [17]

or a director of a gymnasium [14].

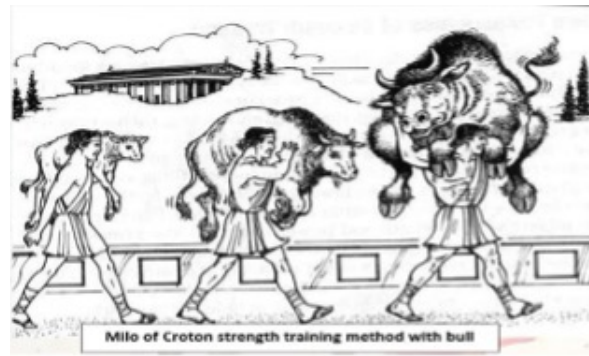


Figure 3: Milo of Corton's strength training method with the bull. Source: [8].

By the 5th century B.C., the trainer-coach had become a significant and influential force in the development of athletics, eventually forming guilds with specific membership criteria. About 444 B.C. Iccus of Tarentum, a former Pentathlon champion, wrote the first textbook on athletic training. Although this book has been lost, this practice continued throughout the Roman Empire for the next 700 years, giving rise to various training manuals (H. & B., 1906). One of the most renowned trainers was Milo of Croton, who was a member of the semi-secret Pythagorean religious sect. He was a legendary athletic icon, claiming victory in thirty-one wrestling championships, including six consecutive Olympic titles. One of his training methods to gain strength was to start lifting a bull on the day of its birth; by doing this daily, one could lift the animal when it was full-grown. This method is the earliest documented example of progressive resistance training [14].

Due to the professional jealousies between doctors and trainers, the physicians did not participate in the care and training of the athlete except to treat sports injuries. This practice continued until the 2nd century A.D. Then, for the very first time in history, the Pontifex Maximus in Pergamum (present-day Bergama, Turkey) appointed Claudius Galen as the physician to the gladiators. This prominent figure in medical history leveraged his experience caring for these athletes to publish numerous findings regarding treating injuries. Following his work with gladiators, he was summoned to Rome to act as the physician for Emperor Marcus Aurelius. He likely continued serving the gladiatorial arena under the reign of Commodus, a renowned gladiator himself, and later served Emperor Septimus Severus. He eventually retired to Sicily, where he passed away around 200 A.D [13, 14].



Figure 4: Claudius Galen. Source: [4]

With the fall of the Roman Empire and the rise of the medieval Church, Galen's works hindered the advancement of medical knowledge in the Western world. However, there were rare bright spots in the darkness, such as Aurelianus in the 5th century, who advocated for post-surgical recovery through exercise, hydrotherapy, and using weights and pulleys for physical activity. In this period of restricted learning in the Western World, the Byzantine Empire safeguarded the scientific legacy of the Greeks and Romans. Additionally, the emergence of Islamic culture in the Middle East played a crucial role in ensuring this heritage was not lost [14].

Islamic culture gave rise to many important medical scholars, among whom Hakim ibn-e-

Sina, or Avicenna as he is known in the West, stood out as one of the greatest during the 10th century. Recognized as the father of Muslim medicine, he compiled the medical knowledge of the ancients and provided a comprehensive summary of the medical understanding of his time. His works emphasized the importance of medical gymnastics, massage, and warm baths, a form of whirlpool, to promote rehabilitation from injuries. It is thanks to writers like Avicenna that early medical knowledge was preserved and reintroduced to the West through Arabic translations during the Crusades. In the 11th century, Maimonides from Egypt also wrote extensively about the value of therapeutic exercise taken in moderation [14, 1, 18].

In the 15th century, Vittorino de Feltre and Maffeus Veginus introduced obligatory exercise into the educational curriculum, which can be seen as the reemergence of physical education. Gerolamo Mercuriale made a significant contribution with his six-volume textbook series, *The Art of Gymnastics* was widely used by the general public and medical professionals. In his works, he categorized exercise into preventive and therapeutic forms, and his books remained in circulation for over 150 years. The importance of exercise gained further recognition in the 16th century through Joubert, who incorporated therapeutic exercise into medical school curricula. Pare, a renowned barber surgeon, emphasized the necessity of this procedure in functional recovery following fracture treatments. In 1602, Marsilius Cagnatus of Verona published *Preservation of Health*, advocating for physicians with expertise in sports to take an active role in overseeing athletic competitions. He understood that a physician's awareness and appreciation of the physical demands of different sports were essential for providing adequate medical care—an insight that holds even today [11, 18].

Modern History of Sports Medicine

Sports medicine in the United States began with Dr. Edward Hitchcock, who became Amherst College's first instructor in physical education and hygiene in 1854. Born in Amherst, he pursued his studies there before attending Tremont and Harvard Medical Schools. Before his Amherst appointment, he taught at Williston Academy. Dr. Hitchcock introduced a new physical education system at Amherst, incorporating not only European-style running and gymnastics but also American sports like baseball and basketball. Serving as the college physician, he conducted anthropometric assessments of students and documented occurrences of diseases and injuries. His contributions include a textbook and 161 articles covering various athletic and medical topics, such as 'Athletics in American Colleges,' 'Basketball for Women,' and 'What the College May Do to Prevent Insanity.' While recognized as the father of physical education in America, he is also considered the country's first sports medicine physician and team doctor [15]. Around the same period in England, Dr. John Morgan conducted one of the earliest modern sports medicine studies, comparing the lifespans of 299 former oarsmen to those of the general population. In 1899, E. A. Darling from Harvard published an article in the *Boston Medical and Surgical Journal* titled *The Effects of Training*. This study, which focused on the fitness of Harvard rowing teams, marked the beginning of modern research into the impact of training on health and fitness [5]. In 1905, Dr. Edward Nichols wrote a paper on football injuries at a time when the government was seriously considering banning the game because of its injury and fatality

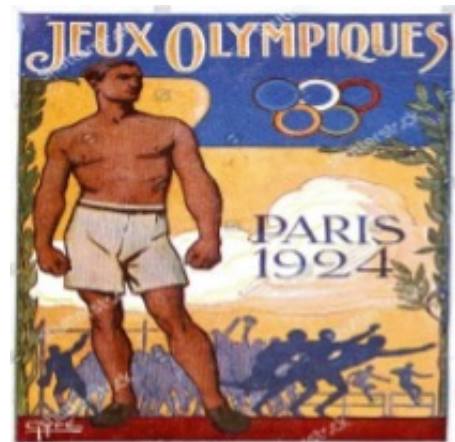


Figure 5: Dr. Edward Hitchcock. Source: [16]

rate. This article can be contrasted with his second article, written in 1909 after the rule changes by Walter Camp and the National Collegiate Athletic Association committee formed for that purpose. His reporting of the lowered injury rate was instrumental in preserving the game [9, 10]. In 1938, Dr. Augustus Thorndike of Harvard published his textbook *Athletic Injuries, Prevention, Diagnosis, and Treatment*. This was the first general American text of sports medicine and still serves as the model text. In the early 1940s, Dr. Thomas B. Quigley, a prominent surgeon in Harvard's athletic program, wrote the *Athlete's Bill of Rights*. This document established clear standards for quality athletic medical care, emphasizing that the well-being and rights of athletes should always be prioritized above all else.

Since the beginning of the 20th century, sports medicine has developed as an area of special interest and expertise at an accelerating pace. For the first time in 1896, Greek doctors were in attendance at the modern Olympic Games. Then, in the 1912 Stockholm Marathon, one athlete named Lazaro died of Heat Stroke, as a result of which physical examinations became mandatory for marathons thereafter. For the first time, the team doctors were there with the United States team at the Paris Olympics in 1924.

Gradually, National and international organizations and societies have developed to allow members from across the globe to share expertise, information, research, and experience to better care for injured athletes. In 1928, at the Second Winter Olympics in St Moritz, Drs. Kroll of Switzerland, Buytendijk of Holland, and Latarjet of France met with 33 other physicians. They planned the First International Congress of Sports Medicine at the 1928 Summer Olympic Games in Amsterdam. It led to the foundation of the International Federation of Sports Medicine (FIMS) in 1928. Following World War II, the sports medicine physicians in the United States recognized the value of a collaborative effort and founded the American College of Sports Medicine in 1954. The multidisciplinary membership of the ACSM consists of a broad spectrum of clinicians (physicians, surgeons, physical therapists, athletic trainers, etc.) and scientists (basic and applied science, exercise physiology, etc.) interested in sports medicine who continue to meet regularly and publish their findings in their journal, *Medicine and Science in Sport, Exercise and Sports Science Reviews*, *Health and Fitness Journal*, and *Current Sports Medicine Reports*. This remains a highly respected and productive organization that addresses the full spectrum of sports medicine issues within the United States and the international community.



Sports medicine now-a-days

Sports medicine is a specialized branch of medicine that focuses on the prevention, diagnosis, treatment, and rehabilitation of injuries related to sports and physical activity. It encompasses the medical and paramedical supervision of athletes, aiming to optimize health and athletic performance while addressing injuries associated with sports and exercise. Although there is a difference in opinion among different countries all over the world, the ideal approach for implementing sports medicine should be two ways; one is the prevention and cure of sports-related injuries and another one is maximizing performance with the appli-



cation of sports science. This field encompasses various disciplines, from orthopaedics and physiotherapy to psychiatry and public health. It not only seeks to improve levels of physical fitness and performance but also aims to further advance the treatment and prevention of injuries related to sports and exercise. Thus, advancement in sports medicine can be done only by advancement of sports science as well as the treatment of sports injuries.

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