



REVIEW

Ancient Boxing: A Narrative Discussion from Archaeological and Historical Evidences

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Abstract

Boxing is one of the most popular and ancient striking combat sports where two athletes, generally wearing protective gloves, throw punches at each other in a boxing ring for a specified amount of time. Boxing has a golden history that dates back thousands of years, not just hundreds. The most famous evidence of fighting sporting competitions goes back to ancient civilizations: the civilizations of Mesopotamia, Egypt Civilization, Minoan Civilization, Greece Civilization, and Roman Civilization. The present investigation was designed to understand the evolution and pattern of boxing games in the ancient world. This study finds that one of the earliest ancient boxing depictions appeared in a terracotta relief based on ancient Eshnunna, a limestone plaque based on the early Dynastic periods of Sumeria, a terracotta tablet was discovered in a tomb near Larasa in southern Iraq, and many more. The study analyzes the extensive literature on the Greek statue of a sitting nude boxer and explains its existence, face, cauliflower-like ear. The study reported some distinguished observations concerning winning rules, awards, gloves, and injuries in ancient boxing. In essence, the current investigators believe that the most notable findings of this study were that no boxing ring was mentioned in literature, the majority of boxers (males) wore beards, and the majority of ancient battles were depicted on ancient Greek pottery. There was bleeding and facial injuries as the sport was very brutal at that time.

Keywords: Boxing, Ancient civilization, Archaeological investigation, Ancient Greek pottery, Sports injury



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Introduction

Frequent body contacts, intermittent games, and high-intensity sports are very widespread in modern times (Islam & De, 2018). The requisite motor skills (Islam et al., 2019; Roy & De, 2018), mental skills (Liew et al., 2019), psychological skills (Birrer & Morgan, 2010), brain functions (De & Mondal, 2016), kinesthetic perception (De & Ghosh, 2016), and

intelligent movements (Islam, 2020) are needed to execute these games and highly intensify sports. Boxing is one of the most recognized combat sports by the spectator in the present world. Nowadays boxing champions make more money than any other professional athletes. The biggest battle of this big money era was the Mayweather Vs Pacquiao event in 2015, which won an estimated \$120 million for Mayweather and

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about \$80 million for Pacquiao but in order to understand the history of boxing, we must go back not only hundreds but thousands of years (Cowie, 2018).

Boxing was a popular sport prior to the birth of Jesus Christ. All day long, boxing attracted spectators, including the elites. In the ancient Near East, this was one of the most well-known competitive sports. The earliest physical boxing evidence was found in Mesopotamia. According to Murry, the origins of boxing as a sport were in ancient Mesopotamia. Ancient carvings from the third and second millennia BCE demonstrate that Mesopotamia was familiar with boxing long before ancient Egypt (Murray, 2010). Some of the ancient limestone plaques, terracotta reliefs, and terracotta tablets exist as physical evidence for the ancient boxing game, and these antiquities discussed in the next chapter.

Boxing, one of the hardest high-intensification sports (Stevens, 2020), has been played around for thousands of years, becoming an official Olympic event in 688 B.C.E. (Before Common Era). There is still evidence of boxing in Ancient Egypt (Halperin et al., 2016; What Is Boxing?, 2003). However, boxing is mentioned in Homer's Iliad and was practiced at the Olympics beginning in the seventh century B.C. (Before Christ). The art of boxing, whereby two men enter a contest to see who can withstand the most punches from the other, dates back at least as far as the earliest civilisations and is probably one of the oldest sports of its kind in the history of fighting. Boxing throughout Ancient Crete was conducted around 1500 BC as it accompanied the spread of Egyptian society across the eastern Mediterranean.

Some of the most well-known representations of the ancient world can be found in the Bronze Age, 1700 BCE. To around 1600 BCE., frescoes from Akrotiri on the Aegean Island of Thera (wall paintings). This is a prime example of Minoan artwork. The frescoes at Akrotiri serve a purpose that is summarized by Dr. N. Marinatos as being much more than merely aesthetic works of worth. She persuasively contends that the frescoes had a connection to the function of the room in which they were painted:

The fresco, which is from Building Beta's Room B1, shows two young people engaged in ceremonial boxing rather than a match. The red coloring, which is customary when depicting men, suggests that the boxers are male. Only a belt and loincloth are worn by them, along with a boxing glove on their right hand. As a show of youth, their hair features long tresses with shaved sections. Contrary to his opponent, the boy on the left is accessorized with a necklace, earrings, bracelets, and anklets. Maybe this boxing scene is more of a ritual sport than a competitive match. It's interesting to note that the young age of the participants in the Akrotiri Boxer Fresco suggests that training for sports began quite early in life (Mark, 2014).

People all over Greece submitted their offerings to the Gods. Throughout these festivals, mass people observed the religious rituals that lasted one night and one day, and often had to be planned for three to five days for different competitions. However, the feature of these events' programs changed year after year. It is important to distinguish two categories of competitions: one dedicated to sports, and another dedicated to music and recitation. Competitive sports include horse and chariot races and combat sports involving boxing, wrestling, pankration (a mixture of boxing and wrestling) and pentathlon, a five-contest series: broad jump,

foot races, discos, wrestling, and javelin. Boxing is presumably one of the most recognizable combat sports in the ancient world. So the features and attributes of ancient boxing are at present increasing the importance of investigation (Bothmer, 2010).

About a thousand years later, in 686 BC, boxing was brought to the Greek Olympic Games where the temptation of fame and riches motivated the competitors to compete (Brice et al., 1993).

The Roman historian Tacitus (c. 56-c. 118 CE) held that future generations should prioritize Roman fighting above all else; he did not want recreational training to take precedence over military preparation. On the other hand, it is known that Augustus (r. 27 BCE-14 CE) was a fan of boxing. Rome's fondness for boxing over other sports was probably brought over by the Etruscans. Contrary to Greek thinking, many Romans grew increasingly sceptical of boxing as it was perceived as a formal, sophisticated sport governed by regulations (V. Matthew, 2020). According to the Roman poet Horace, after the Romans conquered Greece in the second century BC, "Captive Greece captivated her wild conqueror" (Letters 2.1.156). Greek boxing underwent a metamorphosis as a result of Roman control. The sacred Greek games, which included boxing matches to commemorate each unique Greek polis, would now serve the new Roman emperors and meld with Roman traditions. Roman boxing (Pugilatus), which may have descended from early Etruscan versions, has been a part of athletic competitions at the Ludi (state-sponsored games) and Munera since the sixth century BC (Nakamura, 2019).

Altogether, the purpose of this study is to explain the evolution and pattern of the boxing game in the ancient world. In this investigation the researchers collected the information from archaeological findings which are written by secondary sources such as journals, research papers, books, public and official documents, websites, photographs, videos etc. The study covers the evolution of boxing of archaeological and historical literature from the first civilizations of Mesopotamia to the ancient Rome.

Foremost Representations of Ancient Boxing

Boxing has a long storied history. Its origins can be traced as far back as ancient Mesopotamia, where a terracotta relief was discovered, that depicts men boxing (Figure 1).

Though boxing, much older, has given the fact that the act of striking another with one's fist is simply a basic defensive (as well as offensive) mechanism for survival (Murray, 2010). The literary and archaeological evidence, left by the ancients, provides much detail about the boxing game.

One of the first representations of boxing in ancient times appears in a terracotta relief found of two Mesopotamians from the early third or second millennium B.C.E. that was discovered in ancient Eshnunna (now at Tell Asram, Iraq) (Murray, 2010). Researcher Murray (2010) also revealed that, the two boxers, bearing beards and carrying tunics, meet each other with bent arms and clinched fists; each is ready to deliver or withstand a strike. Neither is wearing gloves but both are equipped with some kind of band worn around the wrist, presumably for anatomical support. One of the most obvious other depictions of boxing in Mesopotamia may be a limestone plaque with three registers. It is now on display in the Iraq Museum and dates to the early Dynastic periods of Sumeria, roughly 3000–2340



Figure 1. Depiction of ancient boxing on Mesopotamian Terracotta relief (Circa 2000 B.C.E.) Source: https://twitter.com/hashtag/eshnunna

BCE (No. 9012). In the third register, two boxers and two musicians are seen. With the exception of gloves and cache-sex, both boxers are nude. They adopt positions that are reminiscent of modern boxing matches (Mohamed, 2020). There are various interpretations of the depictions of the delicate fragment of terracotta relief that was found in the Nintu temple in "Khafaji" and dates to the early Sumerian dynastic eras, roughly 3000-2340 BCE. The right of this tableau depicts two sportsmen facing one another and holding each other by the arms, similar to the preceding limestone plaque. The athlete on the left in the main picture looks to have been knocked off by his opponent by grabbing his leg, and he is now tumbling to the ground. According to investigator Murry, the two people on the right are boxers (Festuccia, 2016; Murray, 2010). Another ancient Babylonian-era terracotta tablet was discovered in a tomb near Larasa in southern Iraq (2000-1595 BCE). On this tablet, two men were playing boxing while dressed in hats and tunics. The boxers are using bare hands. Surprisingly, two musicians playing instruments demonstrated that ancient boxing games from the ancient Near East, like bull leaping, were accompanied by music (Mohamed, 2020).

Evolution and Pattern of Ancient Boxing Gloves

In modern times, for a number of combat sports, boxing gloves are one of the most important pieces of equipments. The gloves are both covering boxer hands from being hurt and damaging the opponent. Researchers noted that the boxing gloves trend has been evolved from the traditional gloves of the past. Traditional gloves were just bound around the palms and the fingertips were free. Binding leather strips around the hands for protection was common practice in ancient Greece. However, in Roman times, this became the gladiatorial cestus with copper being glued to the hands to cause greater damage. As we found from secondary sources that in ancient Roman times, it was common practice to tie strips (Hugh, 1911). Interestingly, boxing gloves appear on a stone plaque between 3000 and 2350 BCE on the first boxing artefact. However, no evidence of boxing gloves was found in ancient Egypt's civilization. Gloves were used in the Minoan civilizations, but boxers only had a bandage on one hand. On the other hand, there is evidence of gloves on pottery from the Mycenaean civilization (Murray, 2010). In addition, the Roman version used belts of various lengths, often to the wrist, to shield the forearm while hard hits were being guarded (Cowie, 2018). Caestus was commonly used in Roman gladiatorial combat against each other and against other weapon-wearing gladiators. While other styles of gladiators seem to intersect, a single hit from a caestus would have harmed most fighters (Hugh, 1911).

Characteristics of Ancient Roman Leather Gloves

Present researchers claimed that the combat fighting took place in ancient Roman times and it was very deadly. The oldest surviving specimen of boxing gloves dated back to about 120 anno domini (AD), originating in the shape of two non-matching leather bands were found from archaeological excavations at Vindolanda's Roman castle ("Boxing Glove," 2020). However, ancient Roman leather gloves have been found near the United Kingdom (UK) wall of Hadrian. The gloves were found by archaeologists during a summer excavation of Vindolanda, a Roman fort South of Hadrian's Wall. Unlike the modern boxing glove, the ancient examples have the appearance of a protective guard, designed to fit snugly over the knuckles protecting them from impact. According to the Vindolanda Trust, boxing was a well-documented ancient sport that proceeded the Roman era. In the context of the Roman Army, it was a recorded pursuit, a martial activity designed to increase the skills and fitness of the boxers (Borkhataria, 2018).

Boxing gloves, found at the Roman site of Vindolanda in Northumberland, England, hint at tales of soldiers increasing their battle skills, keeping up their fitness, and passing the time gambling on fights while stationed in the far northern lands of the empire (Little, 2018). The summer of 2017 was a remarkable one for Vindolanda Archaeologists. While exploring the ruins of the Roman site near Hadrian's wall, they unearthed a wealth of artifacts. But one specific finding was the undisputed champion, a pair of one of kind boxing gloves that have rolled with the punches of time (Rogers, 2018). The boxing gloves are not only noteworthy for outstanding preservation but Vindolanda Trust reports that they are an

extremely rare discovery. A press release on the Roman artifacts states, "Research of the objects at Vindolanda along with the considered observations by Roman leather and other experts have indicated that these leather objects are in fact boxing gloves and probably the only known surviving examples from the Roman period." the two gloves were found in a location identified as the cavalry barracks of the Vindolanda fort. The boxing gloves date to approximately 120 AD and are a testament to sparring matches which probably took place amongst members of the garrison. Patricia Birley, former director of the Vindolanda Trust who has now focused on

conservation and research at the site, has told ChronicleLive, "Boxing is an ancient sport and it was practised in the Roman army as a keep fit exercise and probably in combat contests between units, rather like the way the modern army still has its tournaments" (Bernal, 2018; Henderson, 2018).

Description of Ancient Boxer

In 1885, the bronze statue (Figure 2) 'Boxer at Rest' was excavated in Rome on the southern slope of Quirinal Hill, near Constantine's ancient baths.

The date of the statue, which is most likely between the late



Figure 2. The Greek sculpture of a sitting nude boxer (c. 330 to 50 B.C.E., Hellenistic Kingdom) Source: https://www.metmuseum.org/blogs/now-at-the-met/features/2013/the-boxer

fourth and second century B.C., was long debated by researchers. The sculpture is an outstanding bronze work from the Hellenistic period (323-31 B.C.) and is of extraordinary artistic merit (The Boxer: An Ancient Masterpiece, 2013). Another curious feature of this statue is its sitting at all. This is a paradox in several respects. A boxer is an athlete, and should be in action. The figure is however seated and in rest. A traditional depiction of an athlete can be in action but with a broken nose and swollen spots, he shows signs of weakness (Olson, 2016).

The musculature and textures are detailed and idealized but not exaggerated too much. With a furrowed brow his look on his face reveals emotion (Olson, 2016). The several wounds to his face, head, back and the primary focus of ancient Greek boxing fights make it clear that he has just finished a fight. Blood depicted by inlaid copper drips on his forehead from cuts, cheeks and ears. The right eye of boxers gets swollen and bruised. His nose is broken, and he is breathing through his mouth, presumably because blood covers his nostrils (Hemingway, 2013).

Cauliflower Ear of the Ancient Boxer

For some sports, such as boxing, rugby, judo and wrestling, a typical external ear deformity is reported, known as cauliflower ear (Noormohammadpour et al., 2015). This deformity can also take place when defensive ear guards are used. The damage or inflammation injures the cartilage of the ear, disrupts the blood flow from the eye, frequently creating a large pool of blood, called a hematoma. When the ear injury recovers, it is compress and fold in on itself and appears translucent, giving it a cauliflower-like look, hence the word

ear (Cunha, 2018).

It should be remembered that the bronze statue of the ancient seated boxer had cauliflower ear. The ears certainly appear swollen and bleeding in what's generally referred to as the 'cauliflower ear' (Palmquist, 2013). The cauliflower ear represented that the ancient boxer had ear cartilage damage. In present time boxers, wrestlers, and martial artists in particular are susceptible to this type of injury. So, cauliflower ear is sometimes also called the ear of a boxer or wrestler (Cunha, 2018).

Ancient Boxing Winning Rules

Since the exact rules of boxing in antiquity are unknowable, historical evidence and archaeological photographs are used as interpretations. In the 23rd Olympic Games (688 BCE) a man called Onomastos freom Smirna drew up the rules for ancient Olympic boxing, but no description of his rules has come down to the present day (Poliakoff, 2004). Although it was not permitted to use the hands to overwhelm the eyeballs, it is reported that any kind of hand blow was allowed. At Olympia, the boxing laws imposed by the referees are nominal. Boys and adults played in different competitions much as in other disciplines. There were no weight divisions that saved the welterweight from crippling heavyweight blows. Clinching (the act of gripping the opponent's body in order to slow down a fight) was forbidden and the amphora painting revealed representations of judges using their sticks to execute these offences. The idea of a point win or a judge's opinion is new, not ancient. The defeated warrior may hold up a finger in the absence of a knockout to signify surrender, a moment sometimes used in Greek vase paintings (Poliakoff, 2018). Because of the few internet sources and references to the sport, the laws can only be indirect which are following:

- There was no retaining in the old boxing game, rather than Pankration (a combination of boxing and wrestling).
- No ring was used as we considered none of the photos that could show the certain boxing room and ring had been set.
- The former fighting had no frames or time limits.
- Victory was determined when one competitor quit or showed any finger or lifting index finger high, indicates giving up (c. 500 BCE) from the bout.
- Weight level classes not specified, competitors were chosen by chance.
- Fighters could choose to exchange blows without defence (Ancient Greek Olympics -The First Olympic Games in Greece, 2018).

Ancient Boxing Prizes

Danny Mack Gable (a former American wrestler and coach) stated, "Gold medals aren't really made of gold. They're made of sweat, determination, and a hard-to-find alloy called guts" (Gable, n.d.). Therefore, rewards, and prizes are not the

athletes' economic benefit factor alone. The analysis of prizes and rewards is also required to learn the characteristics of hard work, dedication and athletic ability. Ancient boxing prizes can therefore play a significant role in understanding the athletic bravery. Victors' prizes were an important part of ancient athletics. Ancient people used wide mouthed, painted amphorae as decanters and were provided as prizes for combat sports. Noteworthy are the Nolan style (from Nola, Italy), some of which had triple handles common in red figure pottery; the panathenaic amphora, rendered in black-figure and shown at the Panathenaic festivals from the 6th to the 2nd century B.C. as a reward (full of olive oil and with the inscription "I am one of the prizes from Athens") (Pottery, 2010).

Significance of Ancient Greek Pottery in Boxing

A major draw was the 'strong' competitions at all Greek games - wrestling, boxing, and pankration. The pankration was a combination of boxing and wrestling that permitted virtually all techniques. This was wrong to just bit to head after an opponent's pupils. In a terracotta cup (figure-3), a couple of boxers are in a fight to the left. A pair of pancratiasts is down on the field in the middle. A discus lies in a basket above them (Olympic Games | Ancient Greece, n.d.).



Figure 3. The ancient Pankration was denoted as the mixture of boxing and wrestling (490-80 B.C.E.) Source: https://www.khanacademy.org/humanities/ancient-art-civilizations/greek-art/beginners-guide-greece/a/olympic-games

There are several ancient Greek amphorae (Figure 4) and terracotta vases which better explain how the ancient contests of boxing were fought than literatures. The participants seem

to have been very bulky men in this sport (Upper 490 BC). The referee who is hitting the 'big' individual with his switch should he foul and the judge on the left announcing the win-

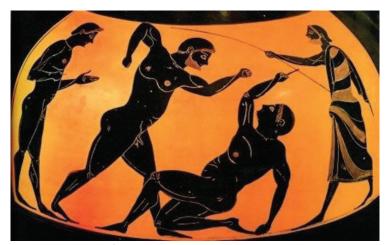


Figure 4. Depiction of ancient boxing on Greek Amphora (c. 332-331 B.C.E.) Source: https://earlychurchhistory.org/entertainment/boxing-in-ancient-roman-world/

ner (Ancient Roman Boxing, n.d.).

Black-figured amphora depicting a boxing match from Agrigento (Sicily), created in Athens around 550-500 BCE,

signed by potter Nikosthenes. The boxers wearing himantes are about to exchange blows (leather thongs tied at the fist). The boxer already had a nose-bleed (Raddato, 2014) (Figure 5).



Figure 5. The nose-bleed from ancient boxer (on the left) (550-500 B.C.E., the 'Amphora' made in Athens) Source: https://www.ancient.eu/image/2688/amphora-showing-a-boxing-contest/ Image credit Raddato, 2014

The amphorae were Panathenaic amphoraes, large ceramic vessels that contained the olive oil. This oil came from the sacred grove of Athena, and the writing of the Athenian prizes fell alongside it (Boardman, 1974). The world's leading expert on ancient Greek vases Dietrich von Bothmer (Grimes, 2009) suggested that in ancient Athens, two rival classes were distinguished; one was dedicated to athletics, and the other to recitation and music. The sports activities included horse and chariot races and athletic games, including boxing, foot races, wrestling, Pankration (a mixture of boxing and wrestling) (Bothmer, 2010). Vases in a variety of shapes that resembled boxing games were present. In his book, Poliakoff mentioned several pottery artworks that featured boxing scenes. It is assumed that the pottery was a reward to the ancient victor (Poliakoff, 2004).

Ancient Boxing Injury

The ever increasing popularity of sport around the world has made the 'sport industry' highly competitive and financially lucrative for athletes (Dhillon et al., 2017). However, sport injuries may occur through contact or non-contact mechanisms, and likely of an acute or overuse nature (Ardern et al., 2016). They may include muscle, ligaments or bone with stress fractures somewhat specific to sport and prolonged use (Dhillon et al., 2017). In boxing the injuries reflect various forms and degrees of trauma. The most vulnerable organs and tissues to this trauma bear the brunt. Boxing trauma most often affects the periorbital regions- the neck, mouth, nose, ears and hands of vulnerable and exposed areas (McCown, 1959).

Ancient combat sports showed physical ability, bravery; determination and the athlete didn't shy away from aggression or backed an opponent. Boxing, wrestling, and the Pankration were called the 'extreme events' barea athla, as the sports were dominated by tall, strong men, as in the ancient era there were no weight classes and fighters were of different dimensions (Jennings, 2016). In this period, to enhance the strength of the blow itself, boxer wrapped leather straps of rawhide leather, and/or cestus (copper being glued to the gloves) around their fists and up their arms. Probably the leather and/or cestus will cut in on the opponents face. Very often they would score a hit in the

head, and blood could pour all over. Several ancient paintings of vases give a good example of the injury. Boxer could suffer a lot from the leather straps. Such paintings revealed that the boxer's face had several wounds with blood pouring from it. The thongs clearly increased the force of a blow (Murray, 2010). Indeed, the fight went on as usual until one of the protagonists succeeded in forcing his opponent to concede defeat or knock him unconscious. The Aeneid provides an in-depth description of an event between Epeus and Euryalus. The latter suffers a terrible hit that knocks him to the ground "nerveless and stretched," and Virgil paints a picture of the fighter being pulled from the ring by his buddies as follows:

"Nodding, his head hangs down his shoulder o'er:
His mouth and nostrils pour the clotted gore:
Wrapt round in mists he lies, and lost to thought;
His friends receive the bowl, too dearly bought." (Masterson, 1976).

The ancient seated boxer's bronze statue (323-31 B.C.) showed that the boxer's blow repeatedly struck both ear, nose, and face.

In addition to showing the structure and binding of the sharp thongs, The Pugilist by Apollonius, the sculpture of the ancient boxer who is seated, also depicts the wounds sustained by the boxers of the first century BC. The frontal and zygomatic bones of the skull have also been damaged at some point, and the face has scars and a broken nose. The swelling is in both ears are also visible (Gardiner, 1930; Harris, 1976; Masterson, 1976).

Similar wounds are shown on the bronze head of boxer Satyros by Silanion, but unlike the statue by Apollonius, which depicts some aristocracy, Satyros' unruly hair, beard, and sullen look are more emblematic of the cruelty to which the sport had gone by Hellenistic times (Masterson, 1976).

Highlighted Findings

At the ancient Olympic Games, only men served as judges; nevertheless, women were not allowed to compete. Another observation was that women were not even permitted to participate in sports. Therefore, the absence of female referees was

reflected in antique pottery (Penjak & Karnincic, 2013).

On the other hand, there is something special about an ancient Greek event called the Heraea featured a footrace with young females. The race, which was staged in Olympia every four years, most likely occurred around the time of the first Olympic Games (D. Matthew, 2002).

The majority of the boxer was kept beard in the ancient Olympic game. Boxers' fingers were uncovered as though they were using some type of thong in their palm. Many of the traditional battles (boxing) were portrayed on ancient Greek pottery, especially on amphorae. Several paintings portrayed the ancient boxer's bleeding and facial injury. No archaeological discoveries support the presence of the boxing playing arena (boxing ring). Therefore, what amount of space was required for boxing fighting is a matter of debate.

Limitation

It is difficult to reconstruct ancient boxing sport on the basis of secondary sources.

Consent for Publication

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Conflict of Interest

The authors confirm that this article content has no conflict of interest.

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References

- Ancient Greek Olympics -The First Olympic Games in Greece. (2018, December 20). International Olympic Committee. https://www.olympic.org/ancient-olympic-games
- Ancient Roman Boxing. (n.d.). Retrieved May 3, 2020, from https://earlychurchhistory.org/entertainment/boxing-in-ancient-roman-world/
- Ardern, C. L., Glasgow, P., Schneiders, A., Witvrouw, E., Clarsen, B., Cools, A., Gojanovic, B., Griffin, S., Khan, K. M., Moksnes, H., Mutch, S. A., Phillips, N., Reurink, G., Sadler, R., Grävare Silbernagel, K., Thorborg, K., Wangensteen, A., Wilk, K. E., & Bizzini, M. (2016). 2016 Consensus statement on Return to Sport from the First World Congress in Sports Physical Therapy, Bern. British Journal of Sports Medicine, 50(14), 853–864. https://doi.org/10.1136/bjsports-2016-096278
- Bernal, M. A. (2018, February 28). Mary Ann Bernal: Heavy Hitters: 2,000-Year-Old Boxing Gloves Suggest Roman Soldiers Used to Duke it Out. *Mary Ann Bernal*. http://maryannbernal.blogspot.com/2018/02/heavy-hitters-2000-year-old-boxing.html
- Birrer, D., & Morgan, G. (2010). Psychological Skills

- Training as a Way to Enhance an Athlete's Performance in High-Intensity Sports: PST in High-Intensity Sports. *Scandinavian Journal of Medicine & Science in Sports*, 20(2), 78–87. https://doi.org/10.1111/j.1600-0838.2010.01188.x
- Boardman, J. (1974). Athenian Black-Figure Vases: A Handbook. *Antiquity*, 48(192), 329–330. https://doi.org/10.1017/S0003598X00058440
- Borkhataria, C. (2018, February 20). Roman Boxing Gloves are Found Near Hadrian's Wall. Mail Online. http://www.dailymail.co.uk/sciencetech/article-5412087/Roman-boxing-gloves-near-Hadrians-Wall.html
- Bothmer, D. von. (2010). A Penathenaic Amphora. The Metropolitan Museum of Art Is Collaborating with JSTOR to Digitize, Preserve, and Extend Access to The Metropolitan Museum of Art Bulletin.
- Boxing Glove. (2020). In *Wikipedia*. https://en.wikipedia.org/w/index.php?title=Boxing_glove&oldid=946203081
- Brice, M. J., Robins, S., Secretariat, E., Glanville, D. H., Mars, S., & Burton, L. (1993). *The Boxing Debate*. British Medical Association.
- Cowie, A. (2018). *The History of Boxing: Gory Gladiatorial Origins, Back Street Venues, and Big Money* [Text]. Ancient Origins. https://www.ancient-origins.net/history-ancient-traditions/history-boxing-0010959
- Cunha, J. P. (2018). Cauliflower Ear Causes, Treatment, Draining & Surgery. MedicineNet. https://www.medicinenet.com/cauliflower_ear/article.htm
- De, A., & Ghosh, S. N. (2016). Effect of Healthy Activity Programmes on Kinesthetic Perception and Self-Concept among School Students. *International Journal of Advanced Scientific Research*, 1(7), 29–33.
- De, A., & Mondal, S. (2016). Improvement of Brain Function through Combined Yogic Intervention, Meditation and Pranayama: A Critical Analysis. *European Journal of Physical Education and Sport*, 13(3), 89–96. https://doi.org/10.13187/ejpe.2016.13.89
- Dhillon, H., Dhillon, S., & Dhillon, M. (2017). Current Concepts in Sports Injury Rehabilitation. *Indian Journal of Orthopaedics*, *51*(5), 529. https://doi.org/10.4103/ortho. IJOrtho_226_17
- Festuccia, S. (2016). Sport Representation: Transfer Images of Agonistic Contests. *Proceeding of International Congress on the Archaeology*, 1, 99–110.
- Gable, D. (n.d.). *Dan Gable Quotes*. BrainyQuote. Retrieved May 4, 2020, from https://www.brainyquote.com/quotes/dan_gable_198628
- Gardiner, E. N. (1930). *Athletics in the Ancient World*. Oxford University Press.
- Grimes, W. (2009, October 15). Dietrich von Bothmer, Curator and Art Historian, Dies at 90. *The New York Times*. https://www.nytimes.com/2009/10/15/arts/15bothmer.html
- Halperin, I., Hughes, S., & Chapman, D. W. (2016).
 Physiological Profile of a Professional Boxer Preparing for Title Bout: A Case Study. *Journal of Sports Sciences*, 34(20), 1949–1956. https://doi.org/10.1080/02640414.2016.11431
 10
- Harris, H. A. (1976). *Greek Athletes and Athletics*. Hutchinson. London.
- Hemingway, S. (2013, June 17). *The Boxer: An Ancient Masterpiece Comes to the Met.* Curator, Department of Greek and Roman Art. https://www.metmuseum.org/blogs/now-at-the-met/features/2013/the-boxer

- Henderson, T. (2018, February 20). *Knock Out as Roman Boxing Gloves are Discovered in North East*. Nechronicle. https://www.chroniclelive.co.uk/news/north-east-news/knock-out-find-roman-boxing-14311448
- Hugh, C. (1911). Cestus: Encyclopædia Britannica. In *Wikipedia* (11th ed.). Cambridge University Press. https://en.wikipedia.org/w/index.php?title=Cestus&oldid=952111580
- Islam, M. S. (2020). Introducing Drone Technology to Soccer Coaching. *International Journal of Sports Science and Physical Education*, *5*(1), 1–4. https://doi.org/10.11648/j.ijsspe.20200501.11
- Islam, M. S., & De, A. (2018). Functional Hamstring to Quadriceps Strength Ratio (H:Q) and Hamstrings Injury of Soccer Players: A Qualitative Analysis. *Orthopedics* and Sports Medicine Open Access Journal, 2(2), 126–132. https://doi.org/10.32474/OSMOAJ.2018.02.000133
- Islam, M. S., Kundu, B., & Saha, S. (2019). Relationship between Repeated Sprint Ability and Accuracy of Soccer Shooting Performance in Young Players. *European Journal of Physical Education and Sport Science*, *5*(11), 95–104. https://doi.org/10.5281/ZENODO.3381127
- Jennings, L. A. (2016). The Bloody, Deadly, Heavy Fights of Ancient Greece. *Fightland*. http://fightland.vice.com/blog/the-bloody-deadly-heavy-fights-of-ancient-greece
- Liew, G. C., Kuan, G., Chin, N. S., & Hashim, H. A. (2019). Mental Toughness in Sport: Systematic Review and Future. *German Journal of Exercise and Sport Research*, 49(4), 381–394. https://doi.org/10.1007/s12662-019-00603-3
- Little, B. (2018). *Only Known Boxing Gloves From Roman Empire Discovered*. HISTORY. https://www.history.com/news/only-known-boxing-gloves-from-roman-empire-discovered
- Mark, C. (2014). Akrotiri Frescoes. *World History Encyclopedia*. https://www.worldhistory.org/article/673/akrotiri-frescoes/.
- Masterson, D. W. (1976). The ancient Greek origins of sports medicine. *British Journal of Sports Medicine*, 10(4), 196–202. https://doi.org/10.1136/bjsm.10.4.196
- Matthew, D. (2002). Girls and Women in Classical Greek Religion (1st ed., p. 448). Routledge.
- Matthew, V. (2020). Boxing in the Roman Empire. *World History Encyclopedia*. https://www.worldhistory.org/article/1641/boxing-in-the-roman-empire/
- McCown, I. A. (1959). Boxing injuries. *The American Journal of Surgery*, 98(3), 509–516. https://doi.org/10.1016/0002-9610(59)90545-8
- Mohamed, F. A. (2020). Early Evidence of Boxing in Ancient Egypt and Mesopotamia: A Comparative Study. *Shedet*, 7(7), 74–86. https://doi.org/10.21608/shedet.2020.137664
- Murray, S. R. (2010). Boxing Gloves of the Ancient World. *Journal of Combative Sport*. https://ejmas.com/jcs/2010jcs/jcsart_murray_1007.html
- Nakamura, B. J. (2019). Boxing in the Ancient World. In G. Early (Ed.), The Cambridge Companion to Boxing (1st

- ed., pp. 22–33). Cambridge University Press. https://doi.org/10.1017/9781107415355.003
- Noormohammadpour, P., Rostami, M., Nourian, R., Mansournia, M. A., Sarough Farahani, S., Farahbakhsh, F., & Kordi, R. (2015). Association Between Hearing Loss And Cauliflower Ear in Wrestlers, a Case Control Study Employing Hearing Tests. *Asian Journal of Sports Medicine*, 6(2). https://doi.org/10.5812/asjsm.6(2)2015.25786
- Olson, C. (2016, March 30). *The Seated Boxer*. Art 230: Ancient Art Digital Exhibit. https://scholarexchange.furman.edu/art231/48
- Olympic Games | Ancient Greece. (n.d.). Khan Academy. Retrieved May 4, 2020, from https://www.khanacademy. org/humanities/ancient-art-civilizations/greek-art/beginners-guide-greece/a/olympic-games
- Palmquist, C. (2013, July 25). Ancient Roman Statue of Fighter Shows Cauliflower Ear Being Drained. The Underground. https://www.mixedmartialarts.com/news/Ancient-Roman-statue-of-fighter-shows-cauliflower-ear-being-drained
- Penjak, A., & Karnincic, H. (2013). Sport and Literature: An Overview of the Wrestling Combats in the Early Literary Texts. *International Journal of Humanities and Social Science*, 3(5), 49–55.
- Poliakoff, M. B. (2004). Ancient Combat Sports. *Archaeology Odyssey*, 7(4). https://www.baslibrary.org/archaeology-odyssey/7/4/8
- Poliakoff, M. B. (2018, August 26). Ancient Combat Sports. *Biblical Archaeology Society*. https://www.biblicalarchaeology.org/daily/ancient-cultures/daily-life-and-practice/ancient-combat-sports/
- Pottery, A. (2010). *Amphora* | *Pottery*. Encyclopedia Britannica. https://www.britannica.com/art/amphora-pottery
- Raddato, C. (2014, June 15). *Amphora Showing a Boxing Contest*. Ancient History Encyclopedia. https://www.ancient.eu/image/2688/amphora-showing-a-boxing-contest/
- Rogers, J. (2018, February 20). Ancient Roman Boxing Gloves Discovered near Hadrian's Wall [Text.Article]. Fox News. https://www.foxnews.com/science/ancient-roman-boxing-gloves-discovered-near-hadrians-wall
- Roy, D., & De, A. (2018). Effect of Aging on Psycho-Motor Components in Relation to Perceived Stress among Healthy Citizens. *International Journal of Movement Education and Social Science*, 7(1), 1–6.
- Stevens, E. C. (2020). Why Boxing is the Toughest Sport.
 Breaking Muscle. https://breakingmuscle.com/fitness/why-boxing-is-the-toughest-sport
- The Boxer: An Ancient Masterpiece. (2013). The Metropolitan Museum of Art. https://www.metmuseum.org/exhibitions/listings/2013/the-boxer
- What is Boxing? Definition & Rules. (2003). Study.Com. https://study.com/academy/lesson/what-is-boxing-definition-rules.html