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Athletic Injuries in Ancient Games

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Abstract

Purpose of this research is the analysis of sport injuries during the maintenance of athletic games in ancient Greece. The design of the study included the use of systematic review of the writings in the Greek and the world literature. We visited museums, libraries and open-air archaeological sites. Furthermore we conducted a systematic examination of the items, which are preserved in the creations of antiquity. According to the principal findings of the study, in the ancient games various sports injuries were recognized, such as scratches, lacerations, bleeding under the conjunctiva, skin edema, "cauliflower ear", nose bleeding and fractures of the nasal bones. We concluded that the cases with a high risk and occurrence of musculoskeletal injuries were usual in this era.

Introduction

The political significance of the ancient Greek games contributed significantly to complete mobilization of mental and body forces of the competitors in achieving high athletic performance. The desire for victory and fame was the primary objective for competition, and led to the creation of elite athletic events. However, games such as pancratium, wrestling and boxing were associated with direct contact and free arm movements between opponents, with a high risk and occurrence of musculoskeletal injuries. The present study was based on related literature, both classic and modern. We also studied ancient Greek history to determine the type and the severity of athletic injuries that occurred more frequently during ancient games. Furthermore we analyzed the figures drawn on ancient pottery, inscriptions, epigraphic plates, columns and vessels.

The Games

The athletic events in ancient Greece were divided into two categories; "light" and "heavy". According to Philostratus, light sports were the one stadium race, the two stadium race, the long-distance run, the long jump and the javelin.^{1,2,3} Heavy sports were always a pole of attraction and of significant interest for the spectators.⁴ The heavy sports were the pancratium, wrestling, boxing and discus. Pentathlon consisted of a combination of light and heavy sports.⁵ Most athletic injuries were observed in heavy athletic events.^{1,5}

Pancratium

Pancratium or panmahion, all kinds of fight, was a combination of wrestling and boxing.⁶ It involved boxing grips and free blows with the hands and legs.⁷ At pancratium occurred injuries similar to those at wrestling and boxing.

Because it combined two fighting types, it was the most spectacular and the most popular of all games.⁸ According to Philostratus and Plutarch,^{9,10} wrestling and pancratium were conceived as war techniques; this has been proven in the battles of Marathon and Thermopiles, where the Greeks, after breaking their swords and spears, fought with bare hands using elements from pancratium.

According to Socrates,¹¹ the athletes of pancratium exhibited improved muscle strength, great performance in all types of fighting, excellent technique in the battlefield, and always ensured victory. All types of grips and blows were allowed except from biting, eye ripping,¹² and blows at the genitals.^{13,14} There was continuous movement of the athletes; the falls were spectacular and frequent.¹⁵ Blows with fists and elbows, throwing sand in the mouth, kicking, grips of suffocation at the neck, and dislocations of the knees and the ankles were frequent.^{16,17} Tripping-up, blows to the head, kick to the abdomen, pushing and lifting were allowed.¹⁸⁻²¹

Because of the variety of painful and severe injuries, Anaharsis stated that the crowd would feel sorry for the winners because of their wounds.²² Galen reports that “... *some athletes’ faces became totally deformed and ugly...*”.²³ At 564 before Christ, Arrahion, immobilized by his opponent with a grip of legs and the suffocating grip of neck, grabbed the big toe of his opponent and dislocated his ankle with a violent lateral rotation grip. The opponent raised his hand and denied further game, and then fainted out of pain caused by the broken toe and ankle dislocation. Arrahion was awarded Olympic winner for his third time; however, he died after the fight from the consequences of suffocating grip.²⁴

Sostratos, the pancratium athlete from Sicily, was also known as the akrohersitis because he used to grab his opponents’ fingers and bend them so much that they gave up the fight because of extreme pain.²⁵ Anaharsis, reports on pancratium athletes that “.....*they strangle, and bend each other’s bodies, they hit and kick each other, they spit their teeth from a mouth full of blood and sand, they sprinkle each other with blood and get strangled by their opponents.....*”.²⁶ According to Philostratus the pancratium athletes bend ankles and twist arms, give blows and jump to their opponents.²⁷ Aristophanis, reports that “.....*you should participate to pancratium games with youthful impulse, hit, rip eyes, give fist blows.....*”.²⁸ Libanios has a critical attitude towards pancratium and wrestling, because they cause injuries of the facial bones and the eyes.²⁹

Wrestling

According to Plutarch,³⁰ wrestling is the oldest and most popular of all sports; it is the first form of fight without the use of weapons.^{31,32} Wrestling preceded running since it involves the initial movements that the primitive man made to survive against the wild animals and his enemies.³³ Plutarch

himself refers to wrestling as the most technical and brilliant of all sports.³⁴ Wrestling is distinguished into two types depending on the position of athletes; the standing wrestling or *stadiea*, and the ground wrestling or *alindisin* or *kilisin*.³⁵⁻³⁸ At standing wrestling, the competitors were fighting standing upright; the winner was the athlete that could accomplish the *triagmos* that means to throw his opponent on the ground three times.^{35,36} A “fall” was announced when the athlete’s back touched the ground, the body of the opponent fell prone, or when a single handhold knocked-out the opponent.³⁷ At ground wrestling, the winner was the athlete that could force his opponent to raise his hand, thus “to deny” further game.³⁸

Wrestling was one of the most painful and dangerous games. In his epic poems, Homer refers to wrestling as a painful and ferocious event.³⁹ At the epitaph in memory of Patroclus, it is mentioned that the fight between Ajax and Odysseus was of such intensity that “...*cold sweat poured from their bodies, heavy bruises showed on their sides and shoulders, full of red blood....*”.⁴⁰ Regarding the rules of wrestling, blows and grips on the genital area, biting and strikes in the eyes were not allowed. Philostratus reports that biting, once done, caused the anger of the spectators, which reacted by throwing apples to the athlete.⁴¹ There were no other restrictions even against life threatening strikes or grips. The athlete, however, could raise his hand to stop and “deny” the fight.⁴²

Polydefkis provides names for wrestling grips such as the suffocating, the bending, the tripping-up, the blow, the holding round the neck or the waist, the blow on the jaw, and other grips.⁴³ Aristotle refers on the necessity of combined muscle strength and ethics of the athletes. According to the Greek philosopher, “.....*strength is the force required to move, drag, push, lift, or crush the opponent*”.⁴⁴ In the reports of Solon, the wrestlers learned how to technically avoid handle, push, tripping-up and tightening around the neck grips, and how to lift their opponent from the ground.⁴⁵

The cruelty of wrestling is shown on a certain grip in which the athlete is lifted with the head downwards. Indicative of the occurrence of severe injuries in wrestling are the reports of Philostratus according to which “.....*if there is not enough bone marrow in the spine vertebrae, the spine bends easily, the vertebrae are pressed during the games, and sometimes they dislocate*”.⁴⁶ At the 6th century before Christ, in a wrestling game, Leontiskos from Messina of Sicily crushed the fingers of his opponent, who then demanded to stop the fight.⁴⁷ The severity of wrestling injuries is also demonstrated in the reports of Galen, who referring to wrestlers claims that they are disabled, with their extremities twisted, broken or deformed.⁴⁸ In contrary to other sports, training for wrestling is also hard and similar to the main fight; the incidence of athletic injuries during training is also comparable.⁴⁹

Boxing

Apollo, one of the 12 Gods of Olympus is considered the architect of boxing or fist fighting.⁵⁰ Early boxing games had simple and informal rules.⁵¹ The athletes wrapped their four fingers in a leather strip to make a firm and painless fist.⁵² Later, oxen skin straps have been used for harder blows.⁵³ Philostratus reports that hand straps made of pig skin were not allowed at boxing fights, because they could cause painful and serious wounds.⁵⁴ Plato reports tying leather balls in the palm instead of hand and finger straps.⁵⁵

The event was starting after the participants raised their arms high. The athletes of boxing were fighting until one fell unconscious or denied further fight. If the fight was prolonged without a winner, the judges were making use of the *scale*; this was a prearranged deal between the opponents that consisted of a variety of grips and blows without defense.⁵⁶ Grips and blows in the genital area were not allowed;⁵⁷ however, despite the strict rules wounds were frequent. After the fight, the athletes had deformities of the face, nose bleeding, fractures of the nose, ripped ears and swollen eyes.⁵⁸ Such injuries were common since blows to the head and face were permitted.⁵⁹

Boxing was one of the most dangerous games. Philostratus reports that "...once the fighting time comes, the boxer will get wounded and will cause wounds...".⁶⁰ The great doctor and philosopher Galen, referring to elite athletes of boxing says that "...when the athletes grow old, they creep, wrinkle and squint due to the severe blows; their eyes fill with catarrhal liquids, their teeth fall, and their bones become porotic and break easily".⁶¹⁻⁶² Philostratus probably refers to the induction of trauma, such as scratches, lacerations of tissues, "cauliflower ear". These injuries mainly in terms of ancient medicine were not easy curable. For instance the injury of the ear perichondrium by direct percussion (punch) can lead to the initiation of the mechanism of creation the "cauliflower ear". Artemidoros says that "...if you dream of boxing, this, apart from shame, also means trouble, because the person becomes ugly and bleeds".⁶³ The metacarpal constitute a hard surface and acquire high kinetic energy due to the speed that can be developed by the hand ends. The above mentioned situation leads in strong wounds in the high impact area (face) and results to the bursting of the skin, swelling, bruising and thus to the external deformity. Boxers' blows may be lethal; an example is the death of Amikus by Polydefkis with a single blow above the ear at a boxing game.^{64,65} In his reports on the same incident, Theocritus presents Amikus as a poor man with deformed face and ears from his opponents blows.⁶⁶ According to him, Polydefkis did not kill his opponent, but caused him severe wounds leading to mouth bleeding and suffocation;⁶⁷ "...his jaws were full

of injuries, his eyes narrow like cracks on a smashed face, ...black blood poured out of the torn head, ... smashing his teeth, ... ploughed his face and ripped his cheeks".⁶⁸

Homer in the description of the boxing match between Epeus and Euryalus characterizes the boxing game painful: "πυγμαχίης 'αλεγεινῆς θῆκεν 'αεθλα".⁶⁹ Furthermore Homer analyses the boxing fight between Epeus and Euryalus, where Epeus says that he will tear the flesh of his opponent apart and crash his bones;⁷⁰ Epeus won the brutal fight with a severe blow on the cheek breaking the teeth of Euryalus who had severe mouth bleeding and inability to walk.⁷¹ At 496 before Christ, the athlete of boxing Kleomides from the island of Astypalea, broke the ribs and caused the death of Iko with one blow to the thorax.⁷² At 488 before Christ, Diognitos also won a boxing game after killing his opponent; however, he has not been awarded.⁷³ Pausanias reports on the boxing event between Krefgas and Damoxenos, in which, due to the duration of the fight the judges had to use the scale. Damoxenos asked his opponent to raise his arm, and when the opponent did so, he struck him in the thorax with his fingers extended.⁷⁴ Because of the force applied and the sharp nails, his hand penetrated the skin of Krefgas, grabbed his guts and ripped them out causing instant death.⁷⁵ Many centuries later, John Chrisostomos reports that boxers suffer cracks on the scalp, deformities of the facial bones and total loss of their teeth.⁷⁶ Elianos reports that Efridamas the Kerinian although with broken teeth after severe blows to the face from his opponent, he swallowed his teeth and finally won the fight.⁷⁷

Discus

The last but not least heavy event is the discus. The discus was round-shaped and made of stone or metal; wooden discs were also used for training in the gymnasiums.⁷⁸ The athletes fought naked and threw the discus from the *valve*. The point where the discus reached the ground was called the *signal* and was marked with a pole.⁷⁹ The winner was awarded the athlete who obtained the higher distance of the valve to the signal.⁸⁰ This sport did not involve direct body contact between the athletes. However, many deaths have occurred because of missed throws; interestingly, the discus is associated with the majority of deaths in ancient games.⁸¹ Apollodoros reports the accidental death of Hyacinthos from God Apollo when Zephyros the God of winds sent the discus on Hyacinthos' head causing cerebral bleeding and instant death.^{82,83} In another fight challenged by Goddess Artemis, Orion was killed with the discus.⁸⁴ Akrisios was killed by accident by the grandson of Perseas with the discus during epitaph games,⁸⁵ and Fokos was murdered by Baldric's brother with a discus.⁸⁶

Conclusions

The games contributed significantly to the man's sociopolitical culture in ancient Greece. The places where training and athletic events were taking place were not exclusively used for athletic activities; they also hosted the intellectual cultivation of ancient Greeks. In the gymnasiums, apart from physical exercise, training and fighting, teaching including writing, mathematics, painting and music was also performed.⁸⁷⁻⁹¹ However, although part of a noble sociopolitical culture, ancient Greece games were cruel and

violent, and have been related with a significant number of trauma and deaths. Based on our historical and literature search, the discus, followed by wrestling, boxing and pancratium in which the rules of the games permit direct body contact and free movements, games were associated with a high incidence of severe wounds, haematomas,⁹² fractures,⁹³ injuries to the head,⁹⁴ face and neck,⁹⁵ loss of teeth,⁹⁶⁻⁹⁷ and deaths.⁹⁸⁻⁹⁹ Although the number of deaths is low compared to the number of participants to athletic events, these injuries were often multiple and severe, and in a number of cases have led to significant permanent or transient complications.

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Sportske povrede u antičkoj Grčkoj

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Кључне речи:

trauma,
povrede,
borilački sportovi,
antička Grčka

Сажетак

Cilj ovog istraživanja je analiza sportskih povreda tokom održavanja sportskih igara u antičkoj Grčkoj. U studiji smo koristili sistematizovan pregled grčke i svetske literature. Posećivali smo muzeje, biblioteke i arheološka nalazišta. Osim toga, sistematično smo proučili sačuvane predmete koji su stvoreni u tom periodu. Na osnovu najvažnijih nalaza naše studije, u antičkim vremenima se znalo za različite sportske povrede, kao što su ogrebotine, razderotine, supkonjunktivalno krvarenje, edem kože, „karfiolasto uho“, krvavljenje iz nosa i prelomi nosnih kostiju. Zaključili smo da su visokorizične situacije i nastanak mišićno-skeletnih povreda bili uobičajena pojava u to doba.

Literature

1. Philostratus, *Gymnastics*, 3.
2. Plato. *Laws*, 833d.
3. Aristotle. *Politics*, Θ, 4.
4. J Swaddling (1980). *The Ancient Olympic Games*. London. British Museum Press, p.57.
5. Philostratus, *Gymnastics*, 5.
6. Plutarh. *Ethics*, 638d.
7. P. Samaras *Pagrations -Taekwondo*. Parallel Consideration. Magazine Taekwondo. 1991; Volume 1: p. 10.
8. Philostratus. *Arrachion*, 1.
9. Philostratus, *Gymnastics*, 11.
10. Plutarh. *Ethics*, 639E.
11. Plato. *Eftidimos*, 271 cd.
12. N. Gialouris. *The Olympic Games in Ancient Greece*. Edition: Publishing Company of Athens, 1976; p. 228.
13. Philostratus, *Figures*, 348.
14. Plutarh. *Alkibiades*, 6.
15. I. Kariotakis. *The History of the Heavy Events*. Athens. Edition: Publishing Company of Athens, 1974; p. 118.
16. Julius Polydefkis. *Onomastikos*, C.
17. Drees Ludwig Olympia. *Gods, Artists and Athletes*. London. Pall Mall Press, 1968.
18. Poliakoff B. Michael. *Combat sports in ancient world*. London. Yale University. Press, 1987; p. 63.
19. T. Giannakis. *History of Physical Education*. Athens. Edition: Andrikos Publishing Company, 19; p. 138.
20. Loukianos. *Anaharsis*. *About Exercises*, 9-24.
21. L. Sabbides. *Pagrations the Olympic contest*. Athens. Edition: Free Intellection, 2004; p. 60.
22. Loukianos. *Anaharsis*. *About Exercises*, 10.
23. Galen. *Protrepitic about medicine*, 12.
24. Pausanias. *Greece's Excursion*, VIII, 40. 1-5.
25. Pausanias. *Greece's Excursion*, VI, 4.2.
26. Loukianos. *Anaharsis*. *About Exercises*, 1-14.
27. Philostratus, *Figures*, II, 6.
28. Aristophanes. *Peace*, 896-899.
29. Libanios, *Speech*, 64.119.
30. Plutarh. *Symposium*. B', Δ'.
31. N. Gardiner *Athletics of the ancient world*. Oxford. Glarendon Press, 1930; p. 180.
32. P. Valavanes *Prizes Athletes and Awards*. Athens. Edition: Researchers, 1996; p. 82.
33. T. Giannakis *History of Physical Education*. Athens. Edition: Andrikos Publishing Company, 1998; p. 108.
34. Plutarh. *Symposium*. B', D'.
35. Aeschylus. *Eumenides*, 589.
36. Philostratus, *Gymnastics*, 11.
37. P. Valavanes. *Prizes Athletes and Awards*. Athens. Edition: Researchers, 1996; p. 82.
38. L. Vrettos Dictionary: *Ceremonies, Affairs and the Games of the Ancient Greeks*. Athens. Edition: Konidares, 2002; p. 558.
39. Homer, *Iliad* Ψ' 701.
40. Homer, *Iliad* Ψ' 715-717.
41. Philostratus, *Figures*, Eros, 4.
42. T. Giannakis *History of Physical Education*. Athens. Edition: Andrikos Publishing Company, 1998; p. 117.
43. Julius Polydefkis. *Onomastikos*, C. 188.
44. Aristotle, *Rhetoric*, 1361 b.
45. Loukianos. *Anaharsis*. *About Exercises*, 24.
46. Philostratus, *Gymnastics*, 35.
47. Pausanias. *Greece's Excursion*, VI, 4, 2.
48. Galen. *About the small ball exercise*.
49. Philostratus, *Gymnastics*, 11.
50. Homer, *Iliad* Ψ' 660.
51. D. Van Dalen et B. Benet A., *World history of physical education*. Cultural, Philosophical, Comparative. New Jersey. Prentice Hall Inc, Englewood Cliffs, 1971; p. 36.
52. Philostratus, *Gymnastics*, 10.
53. Philostratus, *Gymnastics*, 10.
54. Philostratus, *Gymnastics*, 10.
55. Plato. 8, 830b.
56. Eshyios Alexandreus. *Lexicon*.
57. Plutarh. D.I.
58. T. Giannakis (1998). *History of Physical Education*. Athens. Edition: Andrikos Publishing Company, p. 128.
59. Philostratus, *Gymnastics*, 9.
60. Philostratus, *Gymnastics*, 11.
61. Galen. *Protrepitic about medicine*, 11.
62. Galen. *Protrepitic about medicine*, 11.
63. Artemidoros. *Onirokritica*, A, 61.
64. Apollon Rodius. *Argonautica*, B, 1.
65. Apollodoros, A', 119.
66. Theokritos. *Idylls*, 22.27-135.
67. Theokritos. *Idylls*, 22.27-135.
68. Theokritos. *Idylls*, 22.27-135.
69. Homer, *Iliad* Ψ' 655.
70. Homer, *Iliad* Ψ' 675.
71. Homer, *Iliad* Ψ' 686-699.
72. Pausanias. *Greece's Excursion*, VI, 9. 6-8.
73. H. Ptolemeos. *Nova Historia*, 190.
74. Pausanias. *Greece's Excursion*, VIII, 40. 1-5.
75. Pausanias. *Greece's Excursion*, VIII, 40. 1-5.
76. Ioannes Chrisostomos. *Speech*, 66, 69.
77. Ailianos. *Diversity history*, X. 19.
78. P. Valavanes (1996). *Prizes Athletes and Awards*. Athens. Edition: Researchers, p. 82.
79. L. Vrettos (2002). *Dictionary: Ceremonies, Affairs and the Games of the Ancient Greeks*. Athens. Edition: Konidares, p. 248.
80. Loukianos. *Anaharsis*. *About Exercises*, 27.
81. T. Giannakis (1998). *History of Physical Education*. Athens. Edition: Andrikos Publishing Company, p. 159.
82. Apollodoros. *Bibliotheca*, A', III, 3.
83. Philostratus, *Figures*, I, 24.
84. Apollodoros. *Bibliotheca*, A', IV, 5.
85. Apollodoros. *Bibliotheca*, A', IV, 4.
86. Apollodoros. *Bibliotheca*, C', XII, 6.
87. T. Giannakis (1998). *Sacred Pan-Hellenic Games*. Athens. Edition: Andrikos Publishing Company, p. 109.
88. Plutarh. *Lycourgos*, 23.
89. Diogenes. *Laertios*, I, 72.
90. Aristotle. *Politics*, 14, 158.
91. S. Geroulanos and R. Bridler (1998). *Trauma: Disutility and provision of trauma in Ancient Greece*. Athens. Edition: Educational Institution of National Banc of Greece, p. 54.
92. Homer, *Iliad* Ψ' 715-717.
93. Philostratus, *Gymnastics*, 35.
94. Galen. *About the small ball exercise*
95. Ioannes Chrisostomos. *Speech*, 66, 69.
96. Galen. *Protrepitic about medicine*, 11.
97. Ailianos. *Diversity history*, X. 19.
98. Theocritus. *Idylls*, 22.27-135.
99. Pausanias. *Greece's Excursion*, VIII, 40. 1-5.