

THE ANCIENT GREEK ORIGINS OF SPORTS MEDICINE

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INTRODUCTION

The history of physical education shows sport and medicine to have a long-standing and close relationship (Dixon et al. 1957). Indeed, if one takes into account the participation of doctors of medicine on national teams and the sporting reputations of some hospitals and medical faculties, a sympathy for sport seems to be almost a tradition of the medical profession. Perhaps the association of health with physical activity, or a common interest in the function of the human body is the reason for this link, but, whatever the cause, it seems at odds with the histories of sport and medicine that Sports Medicine as a specialist field should appear so late on the medical scene. The first international congress of sports medicine was held in 1928, but the Federation Internationale de Medico-Sportive et Scientifique (FIMS) was not formed until 1933. The British Association of Sport and Medicine was not established until 1953 and its counterpart in the US, the American College of Sports Medicine, not until 1954.

It would seem reasonably safe, therefore, to claim that most practitioners regard Sports Medicine as 'something new'. After all, it has been only in the last year that the subject has acquired the respectability due to a recognised study within the field of Physical Medicine. And yet, if one examines carefully its early history, the claim that scientific medicine arose from the practice of sport — in particular from the athletic activities of ancient Greece — is not without some, if only conjectural, foundation.

HIPPOCRATES AND GREEK ATHLETICS

A contemporary of Socrates, Hippocrates (469-399 BC) is considered to be the 'Father of Medicine'. He is the most famous of all the Greek physicians, yet the one about whom we know least. He was born on the island of Kos, but during his lifetime he travelled throughout the Greek world of the 5th century, eventually dying at Larissa in Northern Greece. He is thought to have been an army physician at one time. His theories of medicine have been described by Plato, Aristotle and Meno, but the works that bear his name do not conform to the descriptions given by these philosophers. The attribution of the *Corpus Hippocraticum* is a matter of considerable dispute. Certainly Hippocrates could not have written all 70 volumes which form this heterogeneous collection brought together in Alexandria around 300 BC. Some of the works predate Hippocrates. Others, like parts of the

Iliad, were written perhaps a hundred years after the death of the author to whom they are attributed.

W. H. S. Jones, the editor of the Loeb edition of Hippocrates, believes the Father of Medicine to have been the author of only five of the volumes. viz.

The Prognostic
Regimen in Acute Diseases
On Fractures
On Joints
Epidemics I, II and III

On the other hand, Wake (1966) excludes Epidemics in the belief that these works do not conform to the style of the other volumes. Amongst other things style involves the distribution of sentence lengths and the proportion of short to long sentences. It can be identified by using statistical methods. Wake maintains that the attribution of Epidemics to Hippocrates is based on the frequency of 'favourite' nouns but, as vocabulary is determined by subject matter, this method is not reliable.

From examinations of the content of the first four works, Wake has proposed that the author (who may or may not have been Hippocrates) was a bone-setter rather than a physician. Moreover, he believes the Father of Medicine to have been predominantly concerned with athletic injuries. Note for example what Hippocrates has to say about injury to the spine:

"But the outward curvatures, due to falls, usually occur when the patient comes down on his buttocks or falls on his shoulders".

Or about the hip:

"When the head of the thigh bone is dislocated from the hip it is dislocated in one of four ways, far more frequently inwards; and, of the others the most frequent is outwards. Dislocation backwards and forwards occurs, but it is rare."

This appears to be the opposite of modern experience and both quotations point toward injuries that were likely to have occurred in Greek wrestling and pankration.

That Hippocrates specialised in athletic injuries is further suggested by those injuries to the head that are

described in the books on Fractures and Joints. It would be expected that an army physician would have been concerned more with injuries received from weapons, but the descriptions to be found in these volumes focus on dislocations, fractures of the lower jaw, broken noses and similar injuries. Neither the town nor the military life of the period would have yielded the high proportion of bone setting and dislocation to warrant the author's dwelling on such injuries. But the heavy events of Greek athletics, especially boxing, were likely to have been the cause of numerous injuries of this kind, and were possibly the reason for Hippocrates' concentration upon them.

WRESTLING, PANCRATION AND BOXING IN ANCIENT GREECE

In the fifth century BC Greeks spent much of their time in the palaestra, or wrestling school. These institutions were numerous in Greek cities up to the end of Imperial Rome and a Greek would have joined a palaestra as readily as a young man today would join a club. Plato provides a description of the middle-aged Socrates and the young Alcibiades engaging in bouts of wrestling with each other as readily as today they would play a game of billiards or a round of golf (Warmington and Rouse, 1956).

Without doubt, wrestling was the most popular sport amongst the athletes. A match was held for the best of three falls, a fall being determined when the shoulders of one of the contestants touched the ground, but where a modern contest is divided into rounds, in ancient times the bout was continuous and even after a fall the combatants re-engaged immediately.

Various terms were used to describe specific techniques (Harris, 1964). For example, wrestling 'akrocheirizomai' was a style used when the struggle was commenced, or conducted at arms length. Hands, wrists or arms only were grasped and attempts to throw the opponent were made by sudden twists. Leontiskos, of Messene, was described by Pausanias as having won two victories at Olympia (456 and 452 BC) by using this technique to bend his opponent's fingers backwards (Pausanias, 1971). Harris suggests that this wrestler broke his opponent's fingers, thereby preventing him from continuing to wrestle and, as similar incidents are not reported in subsequent literature, the ploy was probably made illegal.

Homer provides a vivid account of a match between Aias and Odysseus:

"The third bold game Achilles next demands,
And calls the wrestlers to the level sands:
A massive tripod for the victor lies,
Of twice six oxen its reputed price;

And next, the loser's spirits to restore,
A female captive valued but at four.
Scarce did the chief the vigorous strife propose,
When tower-like Aias and Odysseus rose.
Amid the ring each nervous rival stands,
Embracing rigid with implicit hands:
Close locked above, their heads and arms are mixed,
Below their planted feet at distance fixed:
Like two strong rafters which the builder forms,
Proof of the wintry winds and howling storms,
Their tops connected, but at wider space
Fix'd on the centre stands their solid base;
Now to the grasp each manly body bends;
The humid sweat from every pore descends;
Their bones resound with blows; sides, shoulders, thighs
Swell to each grip and bloody tumous rise"

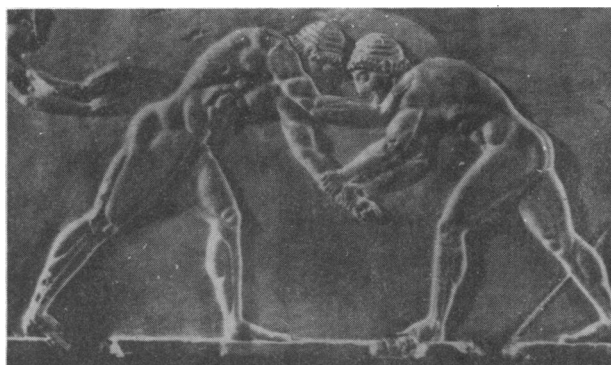


Fig. 1. Wrestlers. Detail of kouros base in bas-relief. (6th cent. BC) Nat. Arch. Mus., Athens.

Fig. 1, an Archaic bas-relief, vividly illustrates Pope's translation of this passage from the twenty-third book of *The Iliad*.

Milo, of Croton — a town famous for its athletes — was the most renowned of all Greek wrestlers. He won five successive Olympic crowns from 536 to 520 BC. As well as these victories he won many others at Delphi, Corinth and Nemea.

Pankration was the only other sport practised in the palaestra. It has been described as a mixture of boxing, wrestling and judo, a kind of scientific unarmed combat. Its object was to bring an opponent to a point where he was compelled to admit defeat, which he signified by holding up his arm. Locks and strangleholds were therefore permitted, but biting and gouging were forbidden. Vase painting and sculpture of pankratiasts indicate that the sport may have resembled karate, but unlike competitions in this martial art, the combats of Ancient Greece did not require blows to be 'pulled'. Arrichion, of Phigaleia, was the most famous of the 6th century pankratiasts. He won three times at Olympia in 572, 568

and 564 BC. On the last occasion his opponent leaped upon his back, scissors his waist with his legs, hooking a foot behind each of Arrichion's knees from inside his legs. At the same time he applied a stranglehold and began to throttle the champion. With his last gasp, Arrichion threw himself sideways, simultaneously flexing a knee to grip one of his opponent's feet and then, by violently extending his hip, he dislocated the trapped ankle. His opponent threw up an arm to signify submission, but the cumulative effect of the stranglehold and the cost of his last effort proved fatal to the champion. Nevertheless, it is recorded that the judges awarded him a posthumous victory and his Elean compatriots crowned the dead body (Harris 1964). Pankration was always a favourite amongst spectators. Pindar wrote eight odes celebrating victors in this event.

The rules for boxing were drawn up about 688 BC. Each protagonist attempted to force his opponent to admit defeat or to knock him out and the bout continued uninterrupted until this happened. There were no weight divisions, so size and strength was all important. The Aeneid provides a vivid description of a match between Epeus and Euryalus. The latter receives a dreadful blow that drops him 'nerveless and extended' to the ground and Virgil describes the picture of the boxer being dragged from the ring by his friends:

"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."

In the early competitions boxers wore soft leather thongs designed not to inflict injury but to protect the fingers. In training they wore large soft pads called *sphairai* (spheres) to allow vigorous combat but avoid damage. To this end they also wore ear-guards (fig. 8) which Plutarch considered more suitable for children in the proximity of a bout to prevent them from hearing the bad language that frequently accompanied the sport! The soft thongs were ultimately replaced by the 'sharp thongs'. These comprised a thin inner glove to which a pad of hard leather was intricately bound. The thonging was carried up the forearm over a separate piece of sheepskin which was used, like the wrist-bandage some tennis players wear today, as a device to wipe sweat quickly away from the brows.

SPORTS INJURIES IN GREEK ATHLETIC ART

The Pugilist by Apollonius, fig. 2, displays not only the structure and binding of the sharp thongs but also reveals the injuries suffered by the boxers of the first century BC. The face is scarred, the nose has been broken and the frontal and zygomatic bones have also been fractured at some time. Both ears are swollen. The head of another pugilist, Satyros, by Silanion, fig. 3,



Fig. 2. *The Pugilist* by Apollonios. (1st cent. BC) Terme Mus., Rome.

displays similar injuries, but where the statue by Apollonius portrays some nobility, the unkempt hair, beard and sullen expression of Satyros are more indicative of the brutality to which the sport had descended by Hellenistic times.

No doubt many injuries occurred in athletics. Some are described in the literature but few are illustrated in the plastic arts. One of the distinctions between the black and red figure vase painting of athletic subjects is that the former style illustrated competition whilst the latter shows scenes of training. But it is in the latter style that an example of injury in pankration is depicted. Fig. 4, reproduces a scene of two pankratiasts in action. Blood pours from the nose of one of the contestants, who also bears the imprint of a bloodstained hand on his back. Unfortunately, although these details can be seen in the original they are faint and reproduce badly. For clarity a line illustration of the scene has to substitute in this article.

It is not surprising that injury should have been rarely depicted in athletic art of the fifth century, for this was

The Cauliflower Ear

From the Archaic (700-500 BC) to the Hellenistic (320 BC →) period the bruised ear was the identifying sign of an athlete. It was, therefore, the most frequently depicted athletic injury in the sculpture and painting of Ancient Greece. It is evident in a sixth century head in the Jacobsen Collection in Copenhagen. That both ears in this work are crushed has led experts to conclude the head to be that of a boxer, but Hyde (1923) maintains that the swollen ear was representative of athletes in general, for it was a realistic professional characteristic. Nevertheless, it seems strange to find crushed ears on works that seek to portray physical perfection. For the sculptor to have incorporated such disfigurements into the otherwise ideal features of the boxer wearing ear guards, fig. 5, seems almost uncanny.



Fig. 3. Satyros the Pugilist by Silanion. (4th cent. BC) Nat. Arch. Mus., Athens.

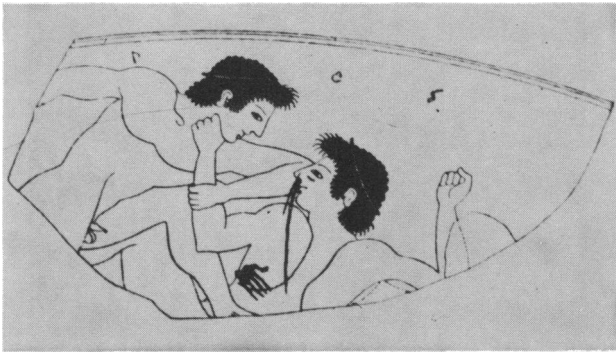


Fig. 4. Pancration. Frag. Attic kylix. (6th cent. BC) Berlin.

the period when art was dominated by a search for the ideal. The works of Ageladas Polyklitos and Myron sought to portray men not as they were, but as they should be. Thus it was that the physiognomy of a work of athletic art of this period did not display distortion arising from injury. One feature, however, was excluded from this search for perfection. It was the swollen ear.

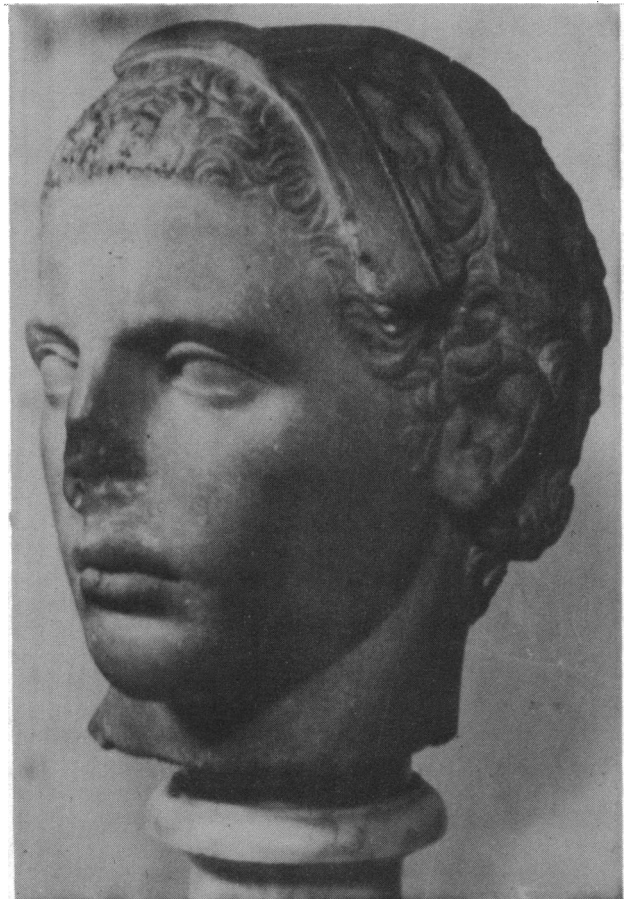


Fig. 5. Head of Boxer Wearing Ear Guards. (4th cent. BC) Nat. Mus., Stockholm.

The cauliflower ear appeared in many early and late Classic works. Agias, the pankratiast, fig. 6, and the Apoxyomenos, both by Lysippos display this feature. So does the Lansdowne Herakles by Scopas.



Fig. 6. Agias the Pancratiast by Lysippos. (4th cent. BC) Nat. Arch. Mus., Delphi.

Of course, swollen ears were common in Hellenistic works, even on boy boxers, fig. 7. They also appear on representations of gods and demigods. Herakles is frequently shown with such an ear and the gods Ares and Diomedes, who practised gymnastics and wrestling, also display this abnormality. Yet, it seems that bruised ears were something to be avoided if possible. Ear guards, fig. 8, were used in training and boxing skill also served as some protection. Plato used the term for cauliflower ear slightly, to describe those who imitated Spartan customs for the Spartans never boxed scientifically but fought with bare fists and without rules.

Medicine and Athletic Training in Ancient Greece

If Hippocrates was expert in athletic injuries much of his knowledge would have come from Herodotus, who is described as not only a trainer of athletes, but also the doctor from whom Hippocrates learned his art. In the Republic Plato refers to Herodotus as "an athletic trainer whose health failed and who proceeded to make first and foremost himself, and then many others after him, miserable by a combination of medicine and physical training". Plato also informs us that it was not



Fig. 7. Boy Boxer. (1st cent. BC) Nat. Mus., Istanbul.

until Herodotus that "doctors made use of the modern methods of nursing disease."

Trainers of athletes occupied an important place in Greek society. They prepared their charges both physi-

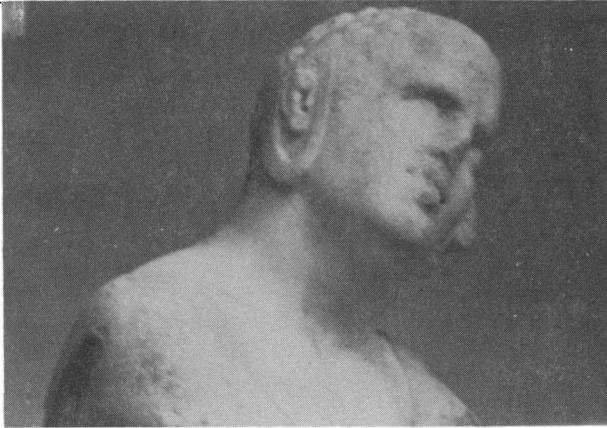


Fig. 8. Boxer Wearing Ear Guards. (4th cent. BC) Met. Mus. Art, Rogers Fund 1917, New York.

cally and psychologically, taught skills and supervised exercise and diet. Their methods are described by various writers and it seems clear that they were well aware of systems that are relatively new to modern training methods (Young, 1973). They realised the value of progressive resistance exercise. For example, Milo, of Croton, previously mentioned as a five times Olympic victor, trained by carrying a bull around a field each day from its birth until it was four years old! Incidentally, Milo's daughter is said to have married the doctor Democedes who has been called the earliest known practitioner in a national health service for he was employed by the island of Aegina as a public physician. He was, however, lured to Athens by an offer of higher pay and subsequently tempted by a yet larger salary to move to the island of Samos. Unfortunately, this island fell to the invaders during the first Persian war and Democedes was taken as a slave to Susa where he impressed Darius by reducing the king's dislocated ankle after native doctors had failed to do so. No doubt Democedes had had plenty of experience of such accidents for, as Milo's son-in-law, he must have accompanied the famous athlete to many athletic contests.

Trainers also supervised the diet of their athletes. In early days this was a simple regimen of porridge, cheese, figs and meal cakes. Meat was only eaten occasionally.

Towards the middle of the fifth century BC a meat diet was introduced by Stymphalos, an ex-athlete who had won two Olympic victories in the long-distance race. Another story attributes the philosopher Pythagoras of Croton as the instigator of a meat diet for Eurymenes of Samos, an athlete he is said to have trained (Harris, 1964). This claim may be considered more than a little dubious as a meat diet was contrary to the Pythagorean advocacy of vegetarianism.

However, enormous quantities of meat were eaten. Milo is reputed to have consumed 20 lbs of meat, 20 lbs of bread and 18 pints of wine in a day. If this were true he should have earned a medal just for getting up from the table!

Gardiner (1930) states that the science of gymnastics was closely connected with that of medicine, but Philostratos (107-244 AD) accused medical science of coddling athletes and being responsible for the decline of athletics. He maintained that it was practice to gorge athletes with food, thereby making gluttons of them. Effects of this overfeeding were borne out by Euripides who denied any merit to athletic training, saying of it that:

"Of all the countless evils throughout Hellas none is worse than the race of athletes... Slaves of their belly and their jaw they know not how to live well. In youth they strut about in splendour, the idols of the city, but when bitter old age comes they are cast aside like worn-out cloaks. I blame the custom of the Hellenes who gather to see such men honouring useless pleasures."

Plutarch was even more caustic, ascribing to trainers and coaches the belief that intelligent conversation at meals spoiled the food and gave the diners a headache!

The ancient link between medicine and sport is said to be best exemplified in Galen (130-201 AD). His writings on the value of exercise and hygiene are often taken to be the first scientific works of this kind. But a close relationship between athletics and medical practice can be found 700 years before De Sanitate Tuenda and may be traced to the Father of Medicine himself. Sports Medicine might therefore be said to be not the newest, but the oldest branch of medicine in the field.

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