

## Medicine in Ancient Greece

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Early Greek medicine was influenced by the ancient Egyptians and their belief in the world of spirits and the supernatural. Diseases were regarded as punishments or even “gifts” from the gods, perhaps angered by sins and misdeeds. Cures involved priests, prayers, offerings, and rituals to rid demons and lift curses.

### **Shift from mythology**

As Greek medicine developed, its emphasis changed. Gradually, disease was seen more as a natural phenomenon or product of the earthly body, rather than a visitation from the gods, and symptoms, diagnosis, and treatment focused on the human, rather than on the supernatural and spiritual. This began a more scientific approach by which the physician made observations of the patient, recorded evidence, and assessed results.

Philosophers and thinkers such as Socrates, Plato, and Aristotle greatly contributed to the evolution of Greek medicine. Even before Socrates, Empedocles formulated the notion of the four classical roots or elements: air, fire, water, and earth. These were incorporated into Greek medicine as the four humors—blood, yellow bile, black bile, and phlegm.

### **Hippocrates**

The most significant figure in ancient Greek medicine, and perhaps in all of medical history, is Hippocrates. He took Greek medicine and rid it of its supernatural elements, insisting on observation and accurate recording of case histories. By comparing these histories, he made the first systematic differentiation of diseases. He also set standards for doctors that are still

admired and respected today. The Hippocratic Corpus, a collection of around 60 works, some of which are ascribed to Hippocrates, marks Greek medicine as separate and distinctive from Egyptian and Mesopotamian medicine.

### **Code of ethics**

Although medical schools were flourishing in Sicily, southern Italy, and at Cyrene in North Africa, the school at Cos that Hippocrates founded became the most famous, and he came to be regarded as its greatest teacher. When entering this esteemed school, incoming students had to take an oath, now known as the **Hippocratic Oath**, in front of their elders and peers. The oath, with its code of ethics, established medicine as a profession that ordinary people could trust. It separated doctors from other “healers” and defined their practice. The oath included a promise to protect confidentiality, and not to “poison” patients. According to the oath, the doctor must be calm and serene, honest, and understanding.

### **Father of modern medicine**

Knowledge of anatomy and physiology was limited in Hippocrates’ time because the Greek respect for the dead meant that dissection was not allowed. Hippocratic medicine stressed three things: close observation of symptoms, being open to ideas, and a willingness to explain the causes of disease. He was probably the first physician to believe that diseases are natural occurrences and are not caused by supernatural forces or gods.

The Corpus is full of case studies, which provide descriptions, for example of tuberculosis, mumps, and malaria. In it Hippocrates defined different categories of illness, such as epidemic, endemic, chronic, and acute—terms that have survived to this day. He was also a talented surgeon and was interested in the study of orthopaedics. Hippocrates placed great emphasis on strengthening and

building up the body's inherent resistance to disease. He also developed an understanding of the importance of hygiene and cleanliness, as well as that of rest and quiet.

### **Developing theories**

A century after Hippocrates, Greek physician Herophilus worked in Alexandria, Egypt. He is often regarded as the first true anatomist because he dissected and studied human bodies. His writings were later taken up in Rome by the physician Claudius Galen and others. Herophilus made the first accurate descriptions of the brain, nerves, eye, arteries and veins, and digestive organs. His suggestion that conscious rational thought and intellect were based in the brain, not in the heart, were controversial at the time.

Herophilus worked with Greek physician Erasistratus. Erasistratus is often seen as the first physiologist—he studied how the body works, or functions, and researched the brain, heart, and blood vessels. Like Herophilus, he believed the heart was not the center of thoughts, feelings, and emotions, but was a kind of pump with flaps, which could act as valves.

Erasistratus suggested that air entered the body through the lungs and went to the heart where it was transformed and distributed as a mysterious “animal spirit,” or “pneuma,” by the arteries. Veins carried blood, from the heart to the various organs. These early ideas on circulation were later extended by Galen and persisted until William Harvey accurately described circulation in 1628.

### **The Four Humors**

With its origins in ancient Greece, the concept of humorism is based on the balance of four humors (body fluids) in the human body—blood, yellow bile,

black bile, and phlegm. This leading medical system thrived in Europe for more than two millennia before it began to lose prominence in the 18th century.

The principles of humorism, developed in Greece and Rome, made their way into Islamic medicine, were adopted by medieval practitioners, and also featured in Ayurvedic medicine in India. Renaissance physicians in Europe were drawn to Galen's teachings on humorism through new translations of his Greek texts.

Extensive tracts were written about the correct treatments to administer when the equilibrium was disturbed. For example, the practice of blood-letting was thought to relieve an excess of the blood, a factor in many diseases.

Throughout the 17th century, humorism was still practised widely in Europe. From the late 18th century, it was swept away in a wave of methodical scientific research and a new understanding of human physiology.

## **Medicine in Ancient Rome**

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The civilization of ancient Rome is famed for its contributions to medicine. Founded largely on Hippocratic and Greek traditions, Roman physicians, surgeons, and pharmacists made many advances, and extensively recorded their medical theories and practices. The Romans were among the first to introduce public health measures, such as clean drinking water and organized sanitation, in their towns and cities. They also began spreading awareness about the importance of general hygiene, including bathing. Exercise and diet, too, were a significant part of their lives.

### **Surgery in Ancient Rome**

For a civilization founded on military skills, surgery became a leading medical discipline—both on the battlefield and during gladiatorial displays. Surgeons could treat many kinds of injuries caused on the battlefield and in everyday life. Surgeons had extensive sets of equipment that included numerous knives; scalpels of various sizes and shapes. There were many prostheses for the eyes, nose, teeth, arms, hands, legs, and feet, made of materials such as wood, iron, silver, and gold. Surgery was rapid but careful and patients received alcohol, opium, and herbs for pain relief, and wound dressings of hot oils, herbal bandages and vinegar.

### **Early hospitals**

Late in the Empire's history, its organization spread to the medical system and the first dedicated hospitals were set up. These were largely reserved for eminent citizens like government officials and merchants, soldiers of high and medium rank, and sometimes, favoured slaves. Although some formal training and licensing was introduced, there were still no official qualifications and almost anyone could practice.

### **Galen**

A physician who was elevated to godlike status, Claudius Galen was the foremost medical authority of the Roman Empire. Building on the work of Hippocrates and other Greek physicians, he wrote a large number of works—more than 400 volumes, containing over 8 million words. His ideas and teachings on human anatomy, as well as the causes and symptoms of diseases, and their treatments, became, in effect, the laws of medicine for more than 1,300 years.

### **Discoveries and contributions**

Galen's primary interest lay in anatomy, which he believed was the basis of all medicine, although he was constrained by laws that forbade the deliberate

opening of the human body. Nevertheless, building on his experience with gladiators, he experimented on and dissected an array of animals, including monkeys. His discoveries were numerous and accurate, and included finding the true identity and extent of many muscles and tendons, and he demonstrated the kidney's role in making urine by clipping the ureter of live animals and showing that it filled with urine.

However, Galen's supreme confidence meant that he often took educated guesses, or clues derived from animals, as facts. For example, his study of the brain and the functions of its parts led to his assertion that the pineal gland helped support blood vessels, a belief that continued to be accepted through the Renaissance.

His medicine, was interwoven with his very idiosyncratic beliefs. Over the centuries, while his philosophy was discarded or superseded, Galen's medical teachings—complete with guesses and misconceptions—became, to many, undeniable. It was not until the 16th century that challenges by Andreas Vesalius, William Harvey, and others began to dismantle the Galenic views of medicine, but even in the 1800s some Western medical doctors still referred to his works.