The practice and study of medicine in Persia has a long and prolific history. The ancient Iranian medicine was combined by different medical traditions from Mesopotamia, Egypt, India, China and Greece for more than 4000 years and merged to form what became the nucleus and foundation of medical practice in the European countries in the 13th century. The Iranian academic centers like Jundishapur University (3rd century AD) were a breeding ground for the union among great scientists from different civilizations. These centers successfully followed their predecessors' theories and greatly extended their scientific research through history. Iranian physicians during the glorious Islamic civilization had a tremendous share in the progress of medical sciences. The excellent clinical observations and physical examinations and writings of Iranian scientists such as Rhazes (Al-Razi, 865-925 AD), Haly Abbas (Ali ibn-al Abbas-al Majusi, died 994 AD), Avicenna (Abou Ali Sina, 980-1037) and Jurjan (Osmail ibn al-Husayn al-Jurjani, 110 AD) influenced all fields of medicine. The new era of medicine in Iran begins with establishment of Dar-ul-funoon in 1851, which was the only center for modern medical education before the establishment of Tehran University. Following the establishment of the Tehran university school of medicine in 1934 and the return of Iranian graduates from the medical schools in Europe, much progress was made in the development and availability of trained manpower and specialized faculties in medicine. After the Islamic revolution by the growing spirit of independence inspired by the Iranian government the number of medical schools and medical students increased more than 10 times. For the 1st time in recent modern history the Iranian medical universities started to offer post-graduate specialized degrees in basic, clinical and engineering sciences.
The first major Iranian dynasty, Achaemenid or Hakhamaneshian (550 BC), promoted the development of culture and science extensively. The great scholars such as the philosophers Anaximenes of Mileth, Plato, Zoroaster, the Babylonian astronomers Kidum and Yawanshih, and Persian subjects. The ancient cultures of the Egyptians, Babylonians, Elamites, and others continued to exist and develop. Babylonian Physicians were all over the territories and served all people including Persians. Xenophon relates that when the Greek soldiers who served under Cyrus the younger passed through the territory of Babylonia, they found sufficient number of Physicians even in the villages to treat the wounded warriors. Texts describe how physicians used medicine, prayers and magic. They would often model images of evil spirits out of clay and shatter them, in order to restore the invalid to health.

Achaemenid made Babylon one of their major capitals and extensively used the texts at the temple libraries. The library at the Persepolis was build to rival the Babylonian and other great libraries of the ancient world. Greeks and Egyptians went there to gather knowledge. The Achaemenid court and served the royal household. Persians also adopted the tradition of paying the physicians according to the rank and gender. The archives at Persepolis indicate that physicians at that time were paid - widows who delivered boys had a child for life of a month, a baby delivered was a girl. The records do not indicate severe punishments if the sick person died, as was the case under Hammurabi (3, 4). Texts also show lists of plants, herbs and other substances used for medicinal purposes. Drugs which were taken internally included; mercury, asphodel, rhabama, cenobium, and sulfur. Animal fats were also prescribed. All were basically the same as Babylonian medicine and prescriptions (3, 4).

At one point Darius ordered a representative to return to Egypt in order to restore the department of the ruined house of life dealing with medicine. While his majesty was in Elam he ordered me (Udjahorresne) to return to Egypt. I gave them every useful thing and all their instruments indicated by the writings, as they had been before. His majesty did this because he knew the virtue of this art to make every sick man recover. (5).

The subsequent Seleucid (selukian) and Parthian (Ashkanian) dynasties followed the same trends with more Greek influence. The Persian Empire continued to grow and played a central role in the history of the Middle East. However the flourishing of science and technology happened in the Sassanian period with major centers of learning and the famous university Jundaishapur (6, 7). The Sassanian king, Khosrow Anoshirvan is mentioned by many historians and biographers to have been a major promoter of all sciences including philology and medicine. He was the first ruler to state the following; "We have made inquiries about the rules of the inhabitants of the Roman Empire and the Indian states. We have never rejected anybody because of their different religion or origin. We have not jealously kept away from them what we affect to learn for we are very desirous to learn what they stand for. For it is a fact that to have knowledge of the truth and of sciences and to study them is the highest thing with which a king can adorn himself. And the most disgraceful thing for kings is to disdain learning and be ashamed of exploring the sciences. He who does not learn is not wise." (8).

Greek Philosophers Syriac speaking Christians and Nestorians fleeing persecution by Byzantine rotaty were received by Anoshirvan and were paid according to rank. The doctors were paid according to the rank of the patient. Books in medicine, philosophy, logic, and theology were translated into Syriac text by Syriac physicians and were received by Anoshirvan. The famous university Jundaishapur (6, 7) was the center of learning and the famous associates and practitioners. The famous writer and translator, Burzyeh who translated the Indian book of fables the Panchatantra (later, Kalithe's a Demen) for the Sassanian king, Anoshirvan (9, 10). The first recorded Muslim Physicians were also paid according to the rank of the patient. Books in medicine, philosophy, logic, and theology were translated from Greek to Syriac and into Pahlavi along with Chinese herbal medicine and religion. The books were kept at the university and the royal libraries and Greek medicine based on works by Hippocrates and Galen dominated the discipline (11).

The later Muslim historians refer to the Sassanian Imperial library as the House of Knowledge (Bayt al Hikmat). The library functioned as both a place where accounts of Iranian history and literature were transcribed and preserved. At the same time it was a place where qualified hired translators, bookbinders and others worked to preserve, purchase, copy, illustrate, write and translate books. It was such texts that made their way into the Islamic period. Many books in sciences and philosophy were translated by the Persians. Greeks, Syrian and Aramaic-speaking scholars into Arabic and eventually made their way into Muslim Spain and Western Europe. Persia and Byzantium dominated the area before Islam. The later was a continuation of the Eastern Roman Empire and the seat of Greco-Roman art, culture and civilization. Alexandria and Constantinople were major centers of intellectual activities with theaters, libraries and universities. In addition to major cities like Alexandria and Constantinople, lesser cities like Syria and Iraq also flourished.

The conquest of Islam in 7th century led to the unification of east and west, improved trade and a book publishing by introducing advanced paper making techniques from China. However, major cities and libraries were destroyed. Arabic eventually became the universal language of the empire and forced conversions into Islam threatened national identities and local cultures. The Imperial
generally felt by religious people to sciences?, which included mathematics, astronomy, had no use for Neo-platonic doctrines of the followers of were either frowned the flourishing of sciences and the translation movement did not last long for a most had no proper training (11-13). Female practitioners and pulse were observed and used to aid the main like their Greek predecessors, the new genre of physicians produced contained extensive information from all extant sources including Greek, Syriac, Baghdad in the first royal library by Caliph al-Mutawakkil. Another Ophthalmology. Masawayh family improved. The Jewish Physician Masawayh practicing at optics. Human eye became the focus of study and major advances host of medicinal against the blind acceptance of any authority and improved outspoken empiricist and insisted that all theories must be confirmed by China, India, Persia. Avicenna like his predecessor Farabi (another well known Iranian) was an outspoken empiricist and insisted that all theories must be confirmed by experience. He argued against the blind acceptance of any authority and improved distillation techniques. Alchemists tried to convert one substance into another and they uncovered a host of medicinal compounds and improved distillation and sublimation techniques. Another major Greek tradition based on theories of Plato and Euclid on light, opened the way to the science of optics. Human eyes and major organs became the focus of study and major improvements. The Jewish Physician Masawayh practicing at Jundaishapur joined the medical school at Baghdad by the invitation of Caliph Harun-ul-Rashid and wrote a detailed book on Ophthalmology. Masawayh family produced three more prominent physicians with the most famous was Yuhanna ibn Masawayh, who wrote another book. Another great Jewish physician who had served at Jundaishapur was Hunain ibn Ishaq. He translated the entire collection of Greek medical works, including Galen and Hippocrates. His original contributions included 10 works on ophthalmology. He was appointed the director of the royal library by Caliph al-Mutawakkil. Tabbarara, another at Mufawakki, Tabbarara, another at Mufawakki, Tabbarara, another in Baghdad in the first half of the 9th century AD. His major work, called "Paradise of Wisdom? contained extensive information from all extant sources including Greek, Syriac, Persian and contained an extensive treatise of Anatomy (11-13). Like their Greek predecessors, the new genre of physicians produced Encyclopedias of medical knowledge based on observation and experience. The main topics included anatomy, classification and causation of diseases, symptoms and pulse were observed and used to aid diagnosis. External or visible manifestations of diseases and internal symptoms like fever, headache etc were listed and studied. Therapy with drugs and herbs were to improve the patient's conditions (11). Female practitioners and nurses that existed before Islam remained for a while but soon lost their position and only midwives continued and most had no proper training (11-13).

The flourishing of sciences and the translation movement did not last long for a number of reasons, including foreign military attacks. The sciences, including medicine, were foreign imports as far as many Arabs were concerned and met with opposition from various quarters. From the time when the translation movement began to the end of the Islamic middle ages, these sciences were either from Alexander the Great or from the Greekatomic or indifferent attack results from the destruction. The Neo-Persian science, which included mathematics, astronomy, medicine, alchemy and astrology were generally felt by religious people to constitute a serious threat to religious belief and
The Hanbali jurist Ibn Taymiyya (in the year 1328) and later his ideological follower Mohammad Ibn Abd-al-Wahhab (founder of wahhabi sect in 1744) launched a passionate and uncompromising attack on Greek logic. There were defenders as well like Ibn Hazm who maintained a liberal and non-dogmatist view of Islamic law, but did not tamper with the Greek logic. Ibn al-Kindi (870 AD), an Arab aristocrat, who supported the Greek scientific tradition which in his time was identified mainly with non-Muslims and non-Arabs. Though the rational sciences remained for a while but at the end they lost specially after the conquest and destruction of Baghdad by the Mongol army (1258 AD). Moreover along with other sciences science of magic, superstition and prayers with rudimentary medicine replaced the brilliant scientific traditions. Magicians, sooth-sayers, exorcists and self-trained herbalists replaced qualified and trained medical practitioners and the concept of Islam that leaders fiercely opposed anatomy and no new knowledge emerged till the advent of modern medicine and importation of European medical knowledge into the Muslim countries in the 19th century (11, 15-17).

The second half of the 19th century is the beginning of major political and ideological transformations in Iran and the start of modernization processes. Modern sciences and western ideas of democracy, modern human civil society enlightenment, freedom of women were introduced through translation of European texts into Persian. The Armenians of Isfahan for their exclusive use imported the first printing machine in 1641. However the first printing machine in Persian started work in Tabriz in 1813 and the modern school Dar ul Fonoun (the institute of technology) started work in 1851 with a few European instructors and texts were translated from a number of European languages to introduce Iranian pupils to modern sciences. Educated Iranians joined and in no time tens of books in Geography, Engineering, Medicine, Military, Biology, Mathematics and other disciplines were translated. In 1856, there were only 253 general practitioners who were trained in Dar-ul-Funoon college of medicine and 652 Hakims who had gained experience of medicine, and were practicing throughout the country. The modernization movement resulted in the constitutional revolution (1906): Iranian students were sent to Europe with government sponsorship and the first modern doctors were trained in Europe. For the first time in history, a University with different faculties was built. In 1934 a new legislation was passed and a budget was allocated to build the first University in Tehran. The medical School at Tehran was the first faculty and soon more modern universities followed in other parts of the country. In 1956 for the first time 12 women were admitted into the University were admitted into a faculty at the University. More 28 years (as a consequence of a social revolution, 8 years of a destructive war imposed by Iraq, excessive brain drain, discriminatory policies and the general conditions which were existed in our country, the 1970's foreign doctors were employed mainly from India and were sent into rural clinics. The medical schools at the major universities enjoyed a high standard and graduates of these universities had no problems continuing postgraduate studies in any of the major medical schools in Europe or North America (18).

After the Islamic revolution and establishment of Islamic Republic of Iran by late Imam Khomeini in 1979, the population of Iran had nearly doubled in less than 2 decades while by the growing spirit of independence inspired by the Iranian government the number of universities and university students increased more than 10 times. For the first time in recent modern history, the Iranian universities started to offer post-graduate specialized degrees in basic, clinical and engineering sciences. All the foreign doctors and medical graduates by young Iranian medical graduates. More than 800 Ph. D. degrees have been awarded in basic sciences only in the past 10 years (19). Despite the great difficulties that the Iranian scientists have been facing for more than 28 years (as a consequence of a social revolution, 8 years of a destructive war imposed by Iraq, excessive brain drain, discriminatory journals and publishing the Iranian articles, and unfair sanctions imposed by the industrialized countries), Iran's science is still thriving and the current number of yearly scientific publications exceeds 2000 (19). When normalized with respect to the number of researchers and the research budget, the Iranian scientists seem to outperform most of their counterparts in the advanced industrialized nations. The main reasons for this are: total-engagement in truncated research activities (basic or applied) leading solely to pure publications and the lack of infrastructure for developmental research activities leading to new technologies. The average impact factor of the papers published in various fields of basic sciences is lower than that of the international papers of the American scientists are working under. Should the research budgets and conditions improve and the unfair sanctions currently imposed by the world politics be eliminated, a far better contribution to the world science can be expected.

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Biotechnology; Medicine; Health; History; Iran. Introduction. Progresses in science make a good opportunity for the revolution of human welfare activities through improvements in the quality and quantity of healthcare. Founded in 1919, Pasteur Institute of Iran is the oldest scientific center for the medical research in Iran. The first director of Pasteur Institute of Iran, Dr. Joseph Mesnard, was a French medical doctor came from France to head the institute in 1920. The mission of the institute was mainly limited to vaccine production for the initial decades. However, the history of vaccination in Iran turns back to the Reign of Qajar in 18th century and was reinforced in 19th century when the Prime Minister Amir Kabir ruled an obligatory public vaccination against smallpox [13,14]. Iran has recently achieved the highest science and technology growth rate in the world. Tehran University of Medical Sciences has the largest network of research in medical sciences. Beside the researches done in departments of its faculties, it is now handling over 100 research centers in Iran, some of them listed below. More than one third of science production in Iran takes place in TUMS. [8]. International campus. In 2006, a group of professors and researchers established the International Campus of Tehran University of Medical Sciences (TUMS-IC). Their main goal was to break new ground in