

Mo Moeslein  
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Professor Hanson  
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## The History of Human Medicine in Latin America

Latin American history is incredibly long and complex. Even focusing on one topic, medicine, came with hundreds of sources and stories from the past. Sadly due to colonization and the loss of oral tradition, most of their scientific history was erased. The Eurocentric view of science and medicine cast out Latin American findings as “alternative” medicine or just did not include them at all. Many practices still happening today in the area are still looked down upon, constantly questioned, and forced into the shadows. In reality without a lot of the discoveries that were made, science and medicine would not look the same. In specific, human anatomy and the ways that we look at the human body. The view of the human body and treatments of ailments to humans is a constantly evolving practice that is forever changing. In the beginning of Latin American scientific history, spirits and gods were to blame for ailments as seen in Aztec and Mayan history. Depending on where you are, the beliefs and treatments will vary wildly. Western medicine has taken over most of the globe but in areas of Asia, Africa, and Central and Latin America, traditional medicine is still taught and practiced. The importance of how the human body was understood and studied determines the kind of medicine that is performed. In the early days of Latin America, spirits were to blame for most ailments, so a lot of the treatments done were done to banish these spirits from a person. Natural remedies were prevalent in the area due to the ease of access and effectiveness of them (Saldana, 2006). Then colonization began, Europeans brought their new diseases and scientific discoveries. They prosecuted early traditional medicine healers as they were seen as against God and forced their

own scientific beliefs on the “New World”. Once these colonizers found out the actual power behind herbal medicine they began exploiting it, going on expeditions to find new plants and remedies. They ravaged land and took samples back to Europe to create their own medicine, making sure only Europeans were granted access to these new medicines. Despite this, Latin American medicine still thrived. The beginning of humoral medicine in the area expanded their understanding of immunology and human disease. The beginning of actual practitioners being taught and given certifications of their studies began to be commonplace, the professionalization of the medical world. The beginning of many nowadays techniques, professions, and theories began in Latin America at this time. Sadly, with the commercialization and professionalization of the medical world came exploration and class disagreements. As the world became globalized, vaccines became more available and what used to be common in the area was now looked down upon due to other societal standards. And to this day, the continued pursuit of science and medicine in Latin America is a driving force in the study of medicine. Traditional medicine led to better vaccines and improvements to the medical world. These traditional practices also led to a more holistic view of the human body, something that is now focused on more and more in human anatomy and medicine. Overall, modern medicine would be nowhere close to where it is today without traditional medicine and the beliefs of the people of Latin America.

The Aztecs were one of the most famous and profound settlements of the area. They are known for their incredible knowledge for their time period and isolation. One of the things they knew the best was herbal medicine. In their arsenal of medicine they had hundreds of medicinal herbs and plants, treatment and cures for almost every ailment that they could have had at the time (Aztec medicine. 2021). Without the influence of Western medicine and culture, diseases were limited to only the ones they had had for hundreds of years. This allowed for many years of

experimenting and the understanding of what local plants and herbs would do to the human body (Saldana, 2006). They also believed that many ailments were caused by spirits and the gods. One example of this was the god Xipe Totec, who was said to cause rashes and skin “eruptions” (Cartwright, M. 2021). Due to their belief that it was a god causing this disease, the practice to cure it was to “march in front of others wearing the skins from human sacrifices during the second month”. This shaped the way they saw the human body, as organs were seen as god-given rather than evolutionary or living beings. The Mayans also had very similar views of the human body and their medicine system. They believed that illnesses were a punishment for a person doing something wrong. Due to this thinking, the medicine men (Maya medicine, 2020) of Maya treated people mostly by what would be considered a modern-day therapy session. This is interesting as they used herbal medicine and drugs to alter minds rather than heal (Maya medicine, 2020). The difference in how the Mayans perceived illness and the Aztecs perceived illness shifted the ways in which they treated those illnesses. Aztecs, due to their more holistic and physical idea of medicine it allowed for them to understand and conceptualize humorism.

Humorism was first theorized and modernized by Ancient Greeks, but was the driving force in European medicine for a long time. It is even seen in American medical history, as bloodletting was an incredibly common practice in the 1600s. The four humors of the human body were a mixture of hot, dry, cold, and wet. Blood was a mix of hot and wet, yellow bile was hot and dry, black bile was dry and cold, and lastly phlegm was cold and wet. They also had connections to air (blood), fire (yellow bile), earth (black bile), and water (phlegm). A human being should have a perfect balance of all four of these humors and the belief was if this balance was thrown off illness occurs (Four humors - and there's the humor of IT: Shakespeare and the four humors., 2013). The true theory of humorism was not introduced in Latin America until the

colonization of “New Spain”, but indigenous people had their own theories surrounding this. The true origin of these beliefs in Latin America is a bit nuanced, as the Aztecs believed in this hot-cold system as connected to their rain god, Tlaloc (Foster, G. M., 1987). Although the beginning of what is now considered humoral medicine most likely originated in Greece and India, this idea of hot and cold was not new to indigenous people of Latin America. Once this theory was brought over to Latin America, new treatments were created and somewhat forced onto the indigenous people of the area. Instead of being able to use gods to explain illness and just use herbal medicine, humorism added a new level of human medicine. Because this is what Europeans believed in, they refused to believe in traditional medicine. This is seen in the prosecution of practitioners of the religions that were treating human ailments with rituals for the gods (Cueto, J., 2007). This began the destruction and erasure of indigenous religion and medical practices, even though Europeans were actively exploiting and using indigenous medicine. The use of herbal medicine continued even after colonization and the search for new treatments and medicine in Latin America drove many expeditions.

One of those expeditions was done by Francisco Hernandez in what would become Mexico and Central America. This expedition was important because he became famous for exploiting the exact medicine that at the beginning of colonization was rejected and looked down upon. This expedition went on for about 3 years and found many plants and herbal remedies. For example he “found” pineapple, cocoa, passionfruit, and hallucinogens like peyote and datura. Peyote had already been found and was a common drug used in the treatment of ailments in Mayan culture, but Hernandez took credit for discovering it. He then lived in Mexico after the expedition, doing tests and studying the samples of plants he found. After his death, King Philip II used Hernandez’s research to try and cure “The French Disease”, to no avail (Francisco

Hernández Expedition (1570–77), 2021). This exploitation of Central and Latin America was nothing new to the area, but the fame and success that came from centuries old ideas was. Europeans began making money and getting famous off of herbal medicine and the Latin American practices that had been rejected in the beginning. Despite this exploitation, medicine in Latin America continued to thrive and began modernizing.

This modernization and westernization of medicine forced Latin America to professionalize their medical system. It began with schools and universities teaching medicine, the beginning of medical schools. But also the professionalization of the medical field was truly the turning point of medicine in the area. One example of this is the practice of “bone-setting”, what would be modern day chiropractors and physical therapists. Bone-setting is an ancient practice dating back to 1552BC in Egypt (Agarwal, A., & Agarwal, R. 2010). The theory of it was found all over the globe though even before globalization, one of those places being South America. This shows that they had at least basic knowledge of human anatomy and the ways that bones work around the 1600s. This is important because leading up to this time not much was known or documented about their knowledge of the human body outside of illnesses and the Aztec and Mayan beliefs of spirits and misfortune. Bone-setting specifically opened the world of medicine to a more professional setting, as at least some training had to be done to understand the human skeleton and succeed at bone-setting. This was also a traditional medicine practice but was not religiously based, so anyone could practice and perform this treatment (Agarwal, A., & Agarwal, R. 2010). The beginning of professionalization of healers and medicine and the bourbon reforms began the revolutionary shift in medicine.

The beginning of professional medicine began with an anatomical amphitheater, which is exactly what it sounds like (Warren, A. 2010). An amphitheater surrounding a medical table,

used to teach medical students or as entertainment. Autopsies and surgeries alike were done with an audience. This was common in 1500s Italy and Greece but was not brought to Latin America until the 1700s, but this shift brought a new age of medicine in the area. Medical schools and knowledge became more important and the professionalism of doctors reinvented the ways medicine was done. But with this reinvention of medicine came class inequality and clear exploitation of people. New hospitals in Lima, for example, did experimental treatments and surgeries on slaves, women of color, and basically anyone they deemed was below them (Warren, A., 2010). Due to the Bourbon Reforms in the late 1700s, the Crown was in charge of most things, including medicine and medical discoveries. The Crown was known for their power hungry nature, as they sought financial and political gain from all scientific discoveries of the area (Saldana, 2006). The health and wellbeing of the people they colonized was no different, they worked to make medicine for-profit and tried to make as much money as they could from people's health. The Crown also made sure that the traditional way of healing was forced out of the professionalism of medicine. Anything that went against their religion was banished, so most herbal medicine and traditional techniques were forced out during this time. Vaccines and surgeries took over, evidence based science pushed forward, and the ways of the past were almost erased. This push towards the modern age of science due to greed and power hungry royals, would completely reshape the ways in which medicine is seen in the modern age.

The introduction of vaccines continued this push forwards. Smallpox was an incredibly deadly disease that was caused by white colonizers colonizing and killing a massive amount of indigenous people (Mark, C., & Rigau-Pérez, J. G., 2009). There was no cure for smallpox, instead it was mostly just death. So when the vaccine for smallpox was created it completely revolutionized treatment and medicine, especially in Latin America. Spanish smallpox

devastated the Aztec empire and continued its destruction late into the 1700s. Herbal and traditional medicine still were the main treatments, and for a disease like smallpox that was not going to cure it. So as the professionalism of medicine began so did the rise in scientific knowledge, specifically in vaccines. The “Spanish smallpox vaccine expedition” of 1803-1813, took the vaccine of smallpox to almost every Spanish colony to get their children vaccinated (Mark, C., & Rigau-Pérez, J. G., 2009). What came out of this expedition was a completely reformed idea about vaccines, public health, human research, and the professionalism of medicine. Who will get the vaccines in the future, who will be tested on and how is that decided, will every hospital in every area get the same amount of vaccines? These are questions that are still being answered in modern medicine, but the beginning of human inoculation of not white people began in Latin America with the smallpox vaccine.

The ways in which modern medicine has been affected by the past is still seen in things like Brazilian biotypology, the definition of body shapes. The overall holistic approach of traditional medicine allowed for this study of body shapes to happen (Gomes, A. C. V, 2015). Brazilian biotypology is the idea that the human body needs to be holistically studied, and one of the things that needs to be studied is the body shape of a person. In this type of medicine, body shape is a part of what determines different ailments and how effective treatments will be (Vimieiro-Gomes, A. C. 2016). This idea that something can determine the course of an ailment and treatment is seen in early herbal and religious medicine. If a god can give someone a disease and a traditional practice can heal that disease, why would the shape of someone’s body not explain the ways in which diseases affect them. Being able to holistically understand the human body absolutely came from ancient times, as if the entire body spiritually and physically were ignored, people died. Aztecs and Mayans truly treated people in holistic ways and as this

tradition of spiritually, mentally, and physically healing people solidified, professions such as bone-setters became standard practice.

Overall, the impact of Latin American medicine has had a massive impact on modern medicine. The use of herbal medicine continues in many Western countries, and without the foundation of herbal medicine, vaccines and things like pain medication may not exist today. Sadly, exploration of land and people were the cost of this modernization and still to this day a lot of scientific discoveries that came out of Latin America are ignored and forgotten. Even though most of modern medicine is built from this foundation of traditional medicine, it is looked down upon in many Western cultures while still being exploited in those same cultures. Luckily, the impact of Latin American medicine still remains, the holistic approach to treatment and prevention, and the beginning of professionalism of the medical field allows for the hospital systems and medical care that we see even in the United States. The understanding and study of the human body that started in the Aztec and Mayan times helped push professions like physical therapy into the modern world. Without this, modern medicine would look completely different, and for that, Latin America deserves much more recognition in their absolute crucial part in the modernization of medicine.



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