Then: The Microscope and X-rays

by Sophia Tutorial

WHAT'S COVERED

In this lesson, you will learn about a few of the most basic yet important technological medical developments. The field of healthcare has made many advances partly because it has taken a reductionist approach. That is, it has made advances by looking at smaller and smaller things. Specifically, this lesson will cover:

1. From Dissection to the Microscope
2. Medical Imaging

BEFORE YOU START

How did technology change the way we understand diseases?

1. From Dissection to the Microscope

For thousands of years, humans have looked for ways to avoid sickness and have applied their problem solving skill to tackle illness and injury. Here, we'll focus on just a few moments in the development of medical technology to understand the human body.

Ancient and medieval societies around the world had many different ways of thinking about health and disease. Until around 500 years ago, though, it was fairly rare for people to anatomize the human body or dissect a corpse. The increasing use of dissection to study the body was part of a bigger change in medical education in Europe. Instead of just reading centuries-old descriptions of anatomy—which weren't always accurate—physicians-in-training began looking for themselves.

Before long, doctors and researchers wanted to look even closer. This led to the development of a foundational piece of medical and scientific technology: the microscope, which has been a critical element of countless scientific discoveries, not least the 19th-century discovery of germs as a cause of disease (Science History Institute, 2017).

Individuals have tried to create lenses or tools to help them see things more clearly for thousands of years. There is a long arc of innovation from early water-filled lenses in ancient Greece to the modern microscope to potentially far more powerful microscopes that use x-rays, fluorescence, or electrons to let us see more microscopically than ever before (Poppick, 2017).

A technician observes cells under a microscope.

2. Medical Imaging

At the end of the 19th century, technological innovation allowed doctors and scientists to look inside living bodies. The x-ray, invented by German physicist Wilhelm Conrad Röntgen, transformed the way doctors diagnose patients. Doctors realized that the x-ray was a powerful tool, and within a year of its invention, one of the first radiology departments opened in Glasgow, Scotland—an example of a professional field showing agility when a new technology tool became available (Ellis, 2017).

Today, x-rays are still used widely. However, medical practitioners have also developed newer ways of looking into the body. Tools like magnetic resonance imaging (MRI), ultrasound, and positron emission tomography (PET) let us see the body's soft tissues and processes like brain signals at work.

As different technologies have been developed, medical schools and doctors themselves have had to adapt to the new possibilities for diagnosing and treating patients. Patients also have adapted to new kinds of medical technology, learning more about their own health and working more collaboratively with their healthcare providers to maximize their quality of life.

Up next, we'll learn about how innovations in medicine have saved lives and changed the future of the medical field.

SUMMARY

In this lesson, you learned about the history of medicine's effort to understand disease and the body, **from dissection to the microscope**. Most recently, **medical imaging** through x-rays, MRIs, and PET scans has allowed medical practitioners to diagnose and treat patients more efficiently and effectively.

Best of luck in your learning!

Source: Strategic Education, Inc. 2020. Learn from the Past, Prepare for the Future.

REFERENCES

Ellis, Monique. (2017, November 22). *The Top 10 Medical Advances in History.* Proclinical. **www.proclinical.com/blogs/2017-11/the-top-10-medical-advances-in-history**

Louis Pasteur. (2017, December 14). Science History Institute. **www.sciencehistory.org/historical-profile/louis-pasteur**

Poppick, Laura. (2017, March 30). Let Us Now Praise the Invention of the Microscope. *Smithsonian Magazine*. **www.smithsonianmag.com/science-nature/what-we-owe-to-the-invention-microscope-180962725**