What can you do with optics and photonics in healthcare? Well, for starters...

Detect cancer or other illness with a breath test.
Detect skin cancer with a bandage that emits light, known as photodynamic therapy.
Treat complexion problems with a laser.
Remove a tattoo with laser.
Repair damaged neurons non-invasively with lasers.

PHOTONICS IS CONSIDERED AS ONE OF THE KEY TECHNOLOGIES OF THE 21ST CENTURY. AT THE HEART OF PHOTONICS ARE TECHNOLOGIES FOR GENERATING LIGHT FOR PRACTICAL PURPOSES IN HEALTH CARE AND LIFE SCIENCES.

With advanced imaging technologies, conduct a motion analysis to reduce athletic injuries.
Use medical imaging to see what is going on inside the body.
Overcome the winter blues with a full spectrum LED light.
Use optics to find disease causing pathogens.
In the future, physicians may use a light-based breath analysis to measure the increased oxygen around a tumor.
With these technologies you can understand the aftermath of a concussion better with diffusion tensor magnetic resonance imaging, restore blindness with a prosthetic retina using nanomaterials and optics in a camera.
Nanomaterials and optics in a camera.

How exactly are optics and photonics used in healthcare?

Doctors and researchers use optics and photonics to treat disease, get images from inside our bodies, provide cosmetic treatments, and more. Medical optics and photonics help reduce or eliminate hospital stays, diagnose disease earlier for greater chance of cure, help patients recover more quickly, and reduce pain.

Medical researchers are exploring how to use optics and photonics in ways never before imagined. Since different wavelengths of light are absorbed differently in human tissue, light can be applied in very selective areas down to the microscopic level, both on the surface of tissues or to parts of the body underneath the skin. This allows doctors to target the tissues they want while limiting the harm to the rest of the body. Light technology also has great potential to bring more and better medical care to underserved areas of the world with its portability, lower costs, and more sterile applications that reduce the risk of infection.

Do you want to explore more?

For cool websites that explore optics and photonics visit: spie.org/resources