

Chapter One - INTRODUCING THE LAISER 11

Getting Familiar with
the LAISer 11

The LAISer 11 is an electro-optical device used to remove fatty and/or calcified plaques from the coronary arteries (recanalization). The physical means used to do this is a type of laser called "excimer" (the word "excimer" was formed by contracting the following two words into one: excited and dimer). So what you are about to learn is how to use this system to do excimer *laser coronary angioplasty*.

An excimer laser has the advantage of producing laser light at an optimally effective wavelength.

What Is a Laser?

The term laser is an acronym for Light Amplification by Stimulated Emission of Radiation.

To understand this, you need to know these simple facts about physics: The smallest units of light are photons. Photons get emitted from atoms when their electrons drop from high-energy states (excited) to low levels (ground states). So you can say that photons carry away the energy difference between the higher and lower energy states of electrons.

We distinguish laser light from ordinary light by its intensity and directionality. And these attributes result from laser light being amplified and monochromatic (one wavelength only).

How Exactly Does the LAISer 11 Generate a Laser Beam?

You don't need to know the physics of laser technology to operate the LAISer 11. But you may rightly feel more comfortable and professional using such sophisticated equipment if you understand at least its basic operational principles. So here, in a nutshell, is what lasers are all about. To create a laser beam you must have these three elements:

1. **A Lasing Medium**—A lasing medium refers to the types of atoms and/or molecules you need to generate light. LAISer 11 uses the gases Neon, Xenon, and Hydrogen Chloride to join the atoms Xenon and Chlorine into short-lived molecules (XeCl).