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MLS 314

MEDICAL PHYSICS

1. Radioactive tracers are synthetic chemical compounds consisting of an endogenous or exogenous carrier molecule that partakes in human metabolism and in which one or more atoms have been replaced by a radioisotope through which its natural decay allows for imaging of the compound.

Radioactive tracers are made up of carrier molecules that are bonded tightly to a radioactive atom. These carrier molecules vary greatly depending on the purpose of the scan. Some tracers employ molecules that interact with a specific protein or sugar in the body and can even employ the patient’s own cells.

1. MPI Scans

A Myocardial Perfusion Imaging scan uses radioactive isotopes to produce images in a method similar to a PET scan, but for monitoring the heart in real time. According to Stanford University Hospital, the technique employs isotopes such as technetium-99 or thallium-201. These isotopes are injected into a vein and find their way to the heart. A specialized camera picks up the emitted gamma rays and produce an image of the beating heart under resting and stress conditions, enabling a doctor to evaluate the organ’s health.