

Differences between CT and MRI scanner.

When you go to hospital for health check or treatment. After the doctors investigated your health problem, they cannot identify the disease. He or she sends the patients to another specific section, which has more specific diagnostic instruments are such as CT scanner, MRI scanner, Ultrasound, Fluoroscopy, and Lung–Heart machine. The more uses in the Department of radiology are CT scanner and MRI scanner. The three main differences between CT scanner and MRI scanner are the image processing, the type of radiations, and the scan time.

The first difference between CT scanner and MRI scanner is that image processing. The CT Scanner uses x-rays to generate cross section images of the body, including bones. The CT scanner has an x-ray tube and a detector on the opposite side, rotates around the patient laying on the table. The patient is between the x-ray tube and the detector. This detector receives the x-ray beam that makes it through the patient. On the other hand, MRI scanner uses a very powerful magnet, pulsing radio waves (Radio Frequency), and the receiver coils. MRI scanner reads the energy produced by water molecules as they mis-align themselves after each RF is switched off. The collected data is reconstructed into a two dimensional illustration through any axis of the body. Bones are virtually void of water and therefore does not generate any image data. This leaves a black area in the images. MRI scanners best suited imaging soft tissues.

The second difference between CT scanner and MRI scanner is that the type of radiations. The CT scanner uses ionizing radiation, which

carries some risks caused by the use of ionizing radiation from the x-rays. It is believed that prolonged exposure to ionizing radiation can cause cancer or deformity of cells. The risk of developing a cancer due to radiation increases with frequency of the tests. Pregnant women are advised to avoid abdominal CT scans because of potential harm to the fetus. In contrast, no x-rays are used in an MRI scanner. The MRI scanner uses non-ionizing radiation. Instead, radio waves and strong magnets relay information to a computer which creates image. There are no health risks associated with the test.

The last difference between CT scanner and MRI scanner is the scan times or total scan time. The CT scanner uses the x-ray tube and the detector rotation time is usually 1 to 2 seconds per slice, and the total scan time is 3-5 minutes per examination. Unlike the CT scanner scan time, MRI scanner uses 20-45 minutes per examination because MRI coils can collect data and converted electronic signal more slower than the CT detector. Since the MRI scanner can decrease the total scan times by using high magnetic field strength and computer high capacity.

In summary, both modalities are good diagnostic choices for human body parts. CT scanner and MRI scanner can study in soft tissue while the CT scanner is often chosen for study in bone structure more than the MRI scanner. The CT scanner uses ionizing radiation and can induce cancer risks while the MRI scanner do not. The CT scanner use shorter scan time than the MRI scanner, yet MRI engineer are working on developing faster MRI machines. You can get some details about difference between CT scanner and MRI scanner. A question for doctors, Is it time for change form CT scanner to MRI scanner, for reducing cancer risks.