

# MRI Machines

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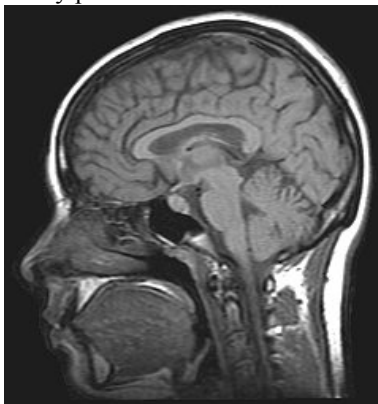
*MRI Machines have helped doctors see the body in a whole new perspective. They are able to find things that x-rays sometimes cannot.*

## I. INTRODUCTION

The MRI Machine was made by Raymond Damadian (1970's), with some help from Isidor Rabi (in 1937). They observed Nuclear Magnetic Resonance (NMR) and used it for the electrically charged particles in the body. Raymond Damadian wanted to find out a way to examine the inner body. He tested cancerous liver cells from rats with NMR. Soon came a makeshift machine that was able to see the inner body, unlike the x-ray machine. MRI stands for "Magnetic Resonance Imaging." It uses a magnetic field and pulses of radio wave energy to make images of organs and structures inside of the body. Most machines are large, tube shaped magnets.

## II. METHODS

The MRI Machine has many uses. It can be used to look at the brain for tumors, nerve injury, damage from a stroke, bleeding in the brain and etc. For the chest it is used to look at the heart and valves. Blood vessels are also examined for the arteries and veins (clots and etc.). The abdomen and pelvis are looked at for any problems with the organs from the abdomen. Bones and Joints are also viewed for any torn ligaments and tendons, cartilage problems, arthritis, and bone marrow issues. Also, the spine is checked out to see if there are any problems with the discs or nerves.



## III. RESULTS

Magnetic Resonance Imaging has helped doctors see the brain and other structures clearer. It has helped in early diagnosis and evaluation of other conditions, especially tumors. The machine is able to find abnormalities, tumors, clots and etc.



## IV. DISCUSSION

The MRI Machine has some disadvantages to it. The patient has to remain still during the exam (the image will not be good). Pregnant women are advised not to take an MRI. The MRI costs more and takes more time. The cost of the exam (depending on where and what type), can go from \$400-\$3,500. The cost of the machine itself can go from \$500,000-\$1.2 million.

Magnetic Resonance Imaging has some advances. They are trying to get MRI tests to take less time. Also, they are trying to reduce the design complexity while improving the image quality.

## REFERENCES

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