

MRI CT Scanner

- In CT Scan (an X-ray) images are not clear because they're based on absorption (It is good for bones, sometimes tissue)
 - MRI is based on protons
 - Into the body they have arbitrary positions
 - When we apply a strong magnetic field, protons are aligned with magnetic field, when radiofrequency pulse is applied, some of them gets activated. When pulse ends, activation ends E_1 relaxation time T_1 is measured.
- Because protons belong to H_2O (hydrogen) it works better in tissues

Ultrasound Devices

- Subsound ← → Ultrasound
- Ultrasound is a sound we can't hear. (Audible → 20-18000 Hz)
It's greater than 20kHz. In medical imaging it's 1-15 MHz.
 - Lower Frequency ↓ Better penetration ↑ Less resolution (3 MHz)
 - Higher Frequency ↗ Worst penetration ↓ Higher resolution (12 MHz)
(we don't miss tissues)
- Development of fetus
 - Evaluation of blood flow
 - Detection of tumors
- } can be seen
(using doppler effect)