

Name = M- Amir

ID = 14245

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subject: MRI

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Q No 1:

Ans: MRI brain:

MRI uses Radiofrequency Pulse to produce 2D or 3D images of the CNS (brain) without the use of ionizing radiation.

which use to show soft tissue of the brain.

It also diagnoses strokes, brain tumours, MS, Dementia etc.

Importance sequences:

Mostly

two sequences are used in MRI i.e; T<sub>1</sub> weighted images which are produced due to utilizing short TE and TR time. contrast and brightness of the image are determined T<sub>1</sub> properties of tissue.

↳ T<sub>1</sub>

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while  $T_2$  weighted images are produced by using longer TE and TR times.

**Procedure:**

MRI use to show the anatomical and physiological process of the body. It is an imaging technique used in radiology. It (MRI) use strong magnetic fields, gradients, and radio waves to generate images of the organs in the body.

Q NO 2:

Ans: Indication for MRI

Liver:

- Hypervascular lesions on MRI.
- liver tumors.
- Differentiate b/w benign and malignant tumor.
- use for blood vessels which are located around the liver.
- liver cancer.

contraindication:

absolute

contraindication:

- Metallic implants, claustrophobia, pacemakers.

Patient having a heart pacemaker are not have MRI scan.

- Metal silver -

- Aneurysm clips in brain.

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= liver

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- located in

RHR.

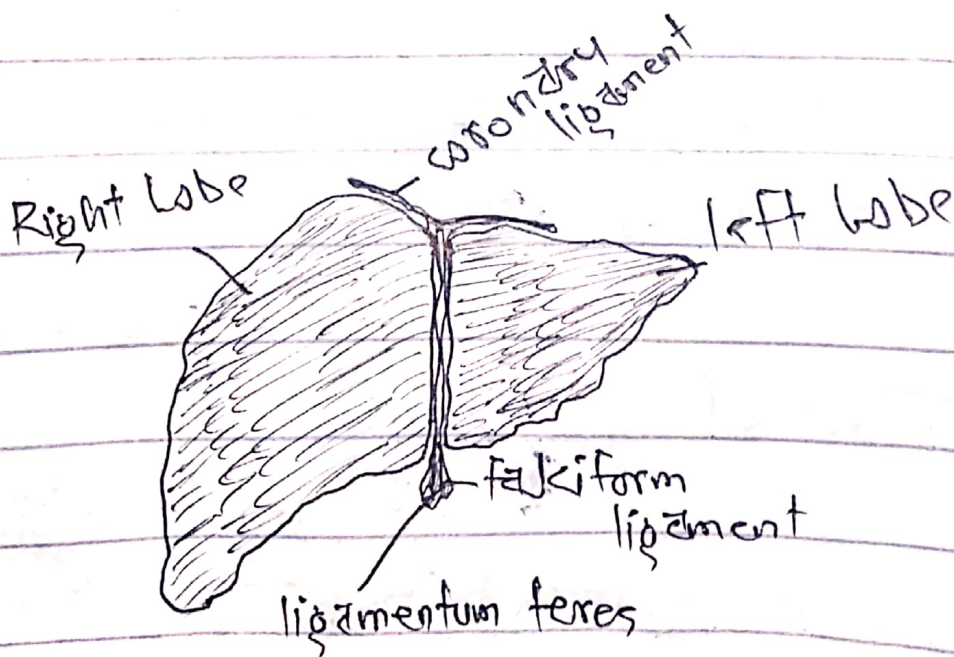
- beneath the Diaphragm.

- Above the stomach.

- cone like shape

- Dark reddish-brown org -  
एक

- 3 pounds (weight).



Q No 3:

Ans:

MRI of spine is performed without pain protocol which use radio-waves and magnetic field to show images of lumbar spine.

MRI spine produce clear detailed pictures of the spine and surrounding tissue. It does not use radiation but use the Gadolinium contrast material.

MRI spine is non-invasive test used to diagnose medical defects.

Standard spine sequences include T<sub>1</sub> intermediate TE, Proton density, or FLAIR. T<sub>2</sub> weighted sequences.

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- some of them are;

- cervical

spine - cervical

- cervical spine - cervical

- thoracic spine - cervical and  
cervical -

the last one sequence  
which have done for  
spine are;

lumber spine -  
cervical and cervical.

Disc slip:

when soft tissue  
in your spine is pushing out  
it cause pain in your  
spine or it is the rupturing  
of the soft tissue which sepa-  
rate vertebral bones.

It is occurs due to  
weakness in the outer ring  
of disc. it also related  
with age. the older the

person the more will be the chances. And after this; spine disc slip occurs with some specific motions.

Slipping disc can be diagnosed by plain x-ray. - CT, MRI and Myelogram are helpful to investigate the slipping disc.

Some people improve after physiotherapy or exercise which some people go to surgery due to high risks.

Disc slip is can be fall due to extra pressures applied by spine. Due to disc slip i.e pain, numbness etc.

Disc slip patients have to rest (10-14 days)  
- using NSAID to reduce pain and inflammation.

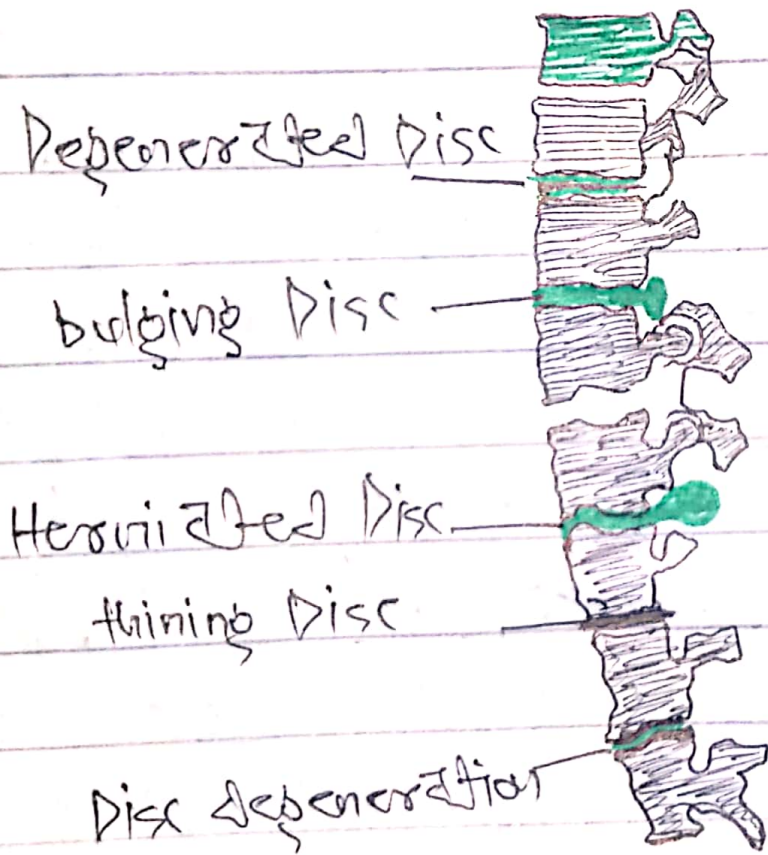
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⑧

- Physiotherapy
- Epidural

steroid injection



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Q No 4:

Ans: (MRV):

is Magnetic Resonance Venography.

- It uses a large magnet, Radiofrequencies, and computer.

MRV is used to determine blood flow and to detect blood restriction (blood clots).

MR venography is helpful in diagnosing venous thrombosis. MRV not required contrast.

It is more accurate and non-surgical imaging technique which focus only on vein health or defects.

MRV also evaluate conditions like Intracranial Hypertension and NPH.

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MRA:

Magnetic Resonance  
Angiography:

This technique is  
used for investigation of  
blood vessels.

MRA take angiogram  
and venogram for some  
defects (i.e; stenosis, blood  
clots, cholesterol plaques, athero-  
sclerosis etc).

it is also non-invasive  
procedure and also safe.

MRA does not expose you  
to ionizing radiation.

MRA also created  
by utilizing RF waves.  
MRA can cause  
pain but less.

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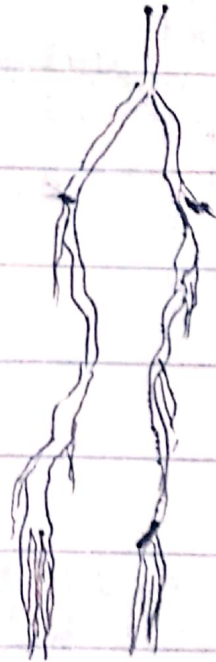
Diagram:

MRA

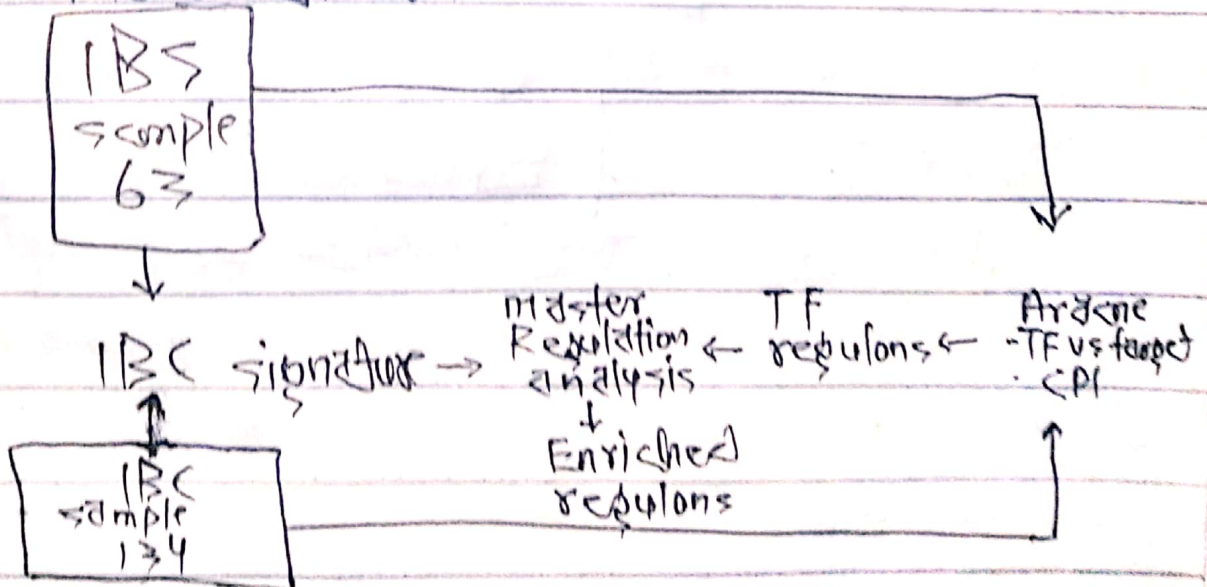
MRV

is used to -  
show arteries.

used to  
show veins.

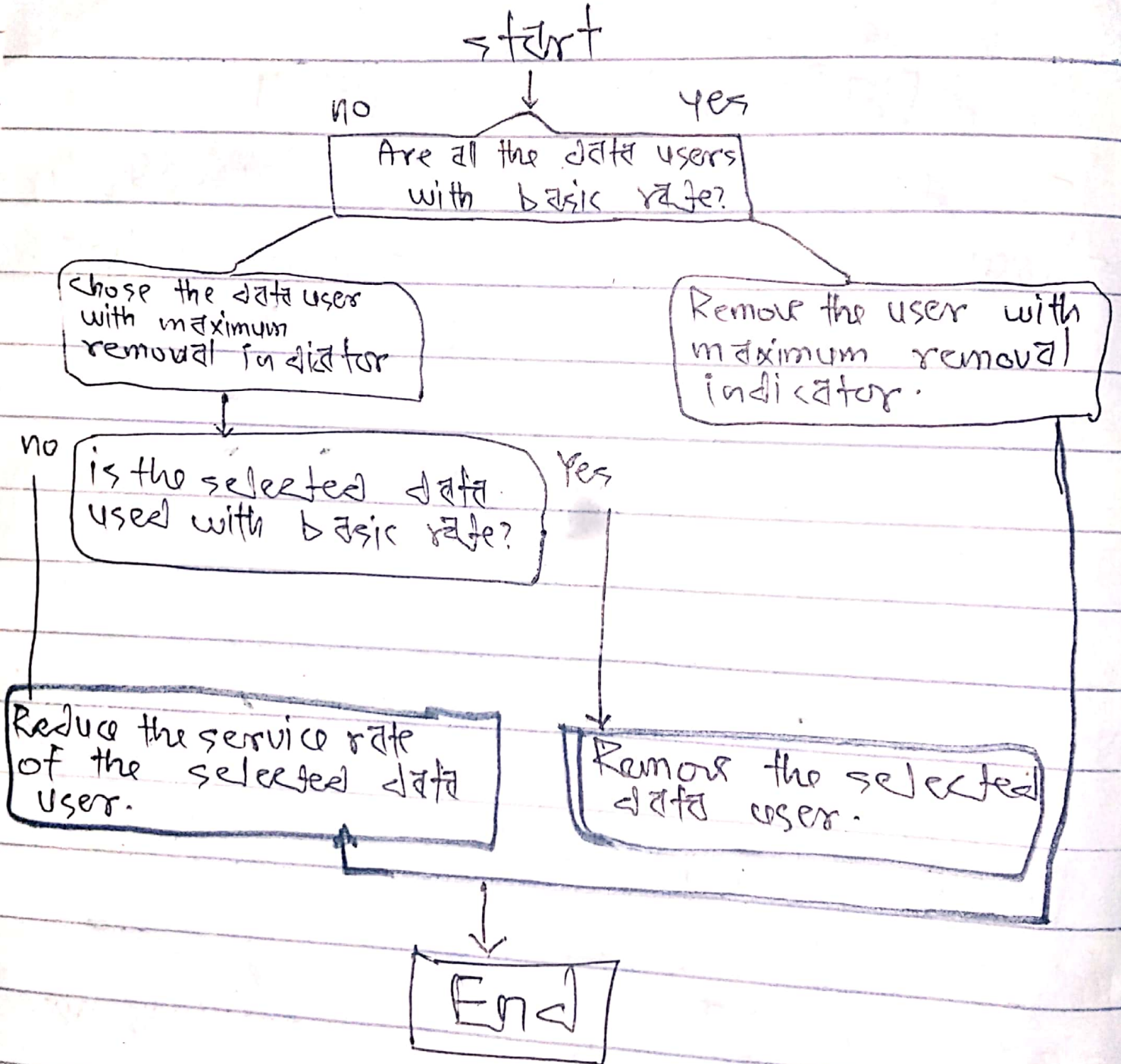


MRA: Flow chart:





# MRV: Flow chart:



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Q No 5:

Ans: Preparation for MRI knees

1- Wearing hospital gown.

2. You can wear T-shirt, underwear, sport pants, and socks during your MRI examination.

3- No metal should be present.

Remove jewelry during MRI.

4- Your doctor should be explain the test.

5- examination of complete medical and physical history.

6- the foot should be first.

Technician will guide the patient.

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## Procedures:

1. In combination with conventional X-rays, MRI is usually the best choice for examining the body's major joints like the knee.

- ~~Knee~~ ~~exam~~

Technologist process the film.

there is no movement for the patient - will be handled.

Technician is necessary during procedure to immobilize the patient.

End