



“बेटी बचाओ, बेटी पढ़ाओ”

**JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR**  
**FACULTY OF PHYSIOTHERAPY & DIAGNOSTICS**

**Faculty Name** : JV'n Ankita  
**Program** : BSc.RT 5<sup>th</sup> Semester  
**Course Name** : Modern Imaging in Diagnosis.  
**Topic Name** : Ultra-Sonography (U.S.G.)- effect over C.T. & M.R.I and cross sectional Anatomy.

**Program Outcome -**

It plays an important role in health sector, provides knowledge about the Diagnostics of any injury , illness or disability in the human body by the help of various modalities or machineries.

**Course Outcome-**

- Develop an understanding of the subject.
- Understand the role of modern imaging.
- Understanding the practical aspects of Advancement of imaging..

**Academic Day starts with –**

Greeting with saying ‘**Namaste**’ by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**.

Previous Session- **Ultra-Sonography (U.S.G.) - Transducer**

Topic to be discussed today- Today We will discuss about- **Ultra - Sonography (U.S.G.) - effect over C.T. & M.R.I and cross sectional Anatomy.**

- ❖ Lesson deliverance (ICT, Diagrams & Live Example)- ICT, Diagrams
- Diagrams

## **Introduction & Brief Discussion**

### **Ultra-Sonography (U.S.G.) :-**

#### **Effect of MRI on Ultrasound:**

MRI does not typically affect ultrasound imaging. Patients who have undergone ultrasound imaging can safely undergo MRI scans without concerns related to the previous ultrasound examination.

#### **Effect of C.T. Scan on Ultrasound:**

CT scans and ultrasound imaging are independent imaging modalities that do not directly influence each other. Undergoing a CT scan should not have any significant effect on the quality or safety of subsequent ultrasound imaging.

However, it's important to consider the overall cumulative radiation exposure if a patient has had multiple imaging studies, including CT scans. Healthcare providers should be aware of the patient's medical history, including prior imaging procedures, to ensure appropriate decision-making regarding additional imaging studies.

In summary, the effects of a CT scan on ultrasound imaging are minimal. Both CT scans and ultrasound have their own advantages, limitations, and safety considerations. Healthcare professionals will choose the most suitable imaging modality based on the patient's condition and the specific clinical question that needs to be addressed.

## **Cross sectional Anatomy of human body :**

### **Abdominal Ultrasound:**

Abdominal ultrasound is used to visualize organs within the abdomen, such as the liver, gallbladder, pancreas, spleen, kidneys, and abdominal aorta. It can also be used to evaluate the gastrointestinal tract and detect abnormalities like tumors, cysts, and fluid collections.

### **Obstetric and Gynecologic Ultrasound:**

Ultrasound is commonly used during pregnancy to visualize the fetus and assess its development. In gynecology, it can visualize the uterus, ovaries, and other reproductive organs. Obstetric and gynecologic ultrasound can reveal information about fetal growth, placental position, and reproductive health.

### **Cardiac Ultrasound (Echocardiography):**

Cardiac ultrasound allows visualization of the heart's structures and function. It provides cross-sectional views of the heart chambers, valves, and blood flow patterns. It's commonly used to diagnose heart conditions and assess heart function.

### **Vascular Ultrasound:**

Vascular ultrasound is used to visualize blood vessels and blood flow. It can be used to assess the carotid arteries, veins of the extremities, and the abdominal aorta. Doppler ultrasound can provide information about blood flow velocity and direction.

### **Musculoskeletal Ultrasound:**

Musculoskeletal ultrasound is used to assess muscles, tendons, ligaments, and joints. It's commonly used to diagnose conditions such as tendonitis, bursitis, and joint inflammation.

### **Thyroid and Neck Ultrasound:**

Ultrasound can visualize the thyroid gland and structures within the neck. It's used to assess the thyroid's size, shape, and any nodules or abnormalities.

### **Pediatric Ultrasound:**

Pediatric ultrasound is used to visualize various structures in infants and children, such as the brain, abdomen, and hips. It's particularly useful for diagnosing developmental hip dysplasia in newborns.

University Library Reference-

- The Physics Of Radiology and Imaging by K. THAYALAN
- Textbook of Radiology for Residents and Technicians by S. K. BHARGAVA

❖ Suggestions to secure good marks to answer in exam-

- Explain answer with key point of the answers

Questions to check understanding level of students-

- ❖ What are the Effect of MRI on Ultrasound ?
- ❖ What is the Effect of C.T. Scan on Ultrasound ?
- ❖ What are cross sectional anatomical details visualized on abdominal U.S.G ?

Next Topic- **N.A.**

National song' Vande Mataram'