Diagnostic Imaging Explained (X-Ray / CT Scan / Ultrasound / MRI)

(0:00 - 1:29)

Is this a fracture, ligament tear, or simple muscle strain? Today, we'll explain the four imaging modalities commonly used after injury. X-ray is a form of radiation. It penetrates the body to produce an image.

Physiotherapists commonly use X-ray to evaluate a possible fracture, dislocation, and bone infection. X-ray has many benefits. It can be performed quickly.

They are readily available and cost effective. The main limitation of X-ray is it produces a two-dimensional image of a three-dimensional object, so a minimum of two different views are often required to evaluate the site of injury. CT scan fires a number of X-rays from different angles.

It can produce a detailed cross-sectional image of the bone, blood vessel, and soft tissues. Physiotherapists commonly use CT scan to evaluate complex regions of the body. These include the spine, pelvis, ankle, and foot.

CT scan has many benefits. It can detect small fractures that may have been missed on an X-ray. It can also produce a three-dimensional image, which makes it easier to locate the site of injury.

CT scan has many limitations. It is relatively expensive, and compared to the plain X-ray, it can expose a person to a greater amount of radiation. Ultrasound uses high-frequency sound waves to produce an image.

(1:30 - 3:04)

Physiotherapists commonly use ultrasound to evaluate soft tissues such as the muscle, tendon, and ligament. Ultrasound has many benefits. It does not expose a person to any radiation.

They are readily available, cost effective, and most importantly, they can be performed during movement. This is particularly helpful in the evaluation of shoulder impingement. The main limitation of ultrasound is it cannot penetrate the tissues and produce image of deep structures such as the meniscus and the ACL.

MRI uses strong magnets and radio frequency waves to produce an image. Physiotherapists commonly use MRI to evaluate the meniscus, labrum, spinal disc, joint, and soft tissues. MRI has many benefits.

It does not expose a person to any radiation. It provides detailed information about the body structures. This enables us to make accurate assessment of soft tissue injuries.

MRI has many limitations. It takes a lot longer to perform. It is relatively expensive, and it cannot be performed in people with certain metal implants, as some metals can heat up or attract to the magnet.

In summary, x-ray and CT scan are often used to evaluate bony injuries such as a fracture. MRI and ultrasound are often used to evaluate soft tissue injuries including the muscle, tendon, and ligament. If you like the content from today's video, don't forget to subscribe.

Thank you for watching. We'll see you next time.