

# Imaging FAQ

## sMSK Physiotherapy

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This information sheet provides some imaging information for the shoulder. Imaging may be necessary after a clinical evaluation to help determine or confirm source(s) of pain or dysfunction.

All medical imaging in BC requires a physician / surgeon / nurse practitioner referral. A brief summary note from physiotherapy is often helpful to explain the need for imaging. Physiotherapists do not have imaging rights at this time in British Columbia.

### Shoulder x-rays

X-rays can be very important for evaluating the health of your shoulder. The particular film views are often based on the concerns from a clinical evaluation in physiotherapy.

X-rays are often necessary for imaging several problems of the shoulder including:

- To reveal abnormalities with the acromion and AC joint for athletic disorders.
- To reveal injury after trauma including severity of fracture, dislocation and separation.
- To reveal the extent / specific changes related to osteoarthritis of two key joints (GHJ/ACJ).
- To reveal the presence of calcific tendinopathy and the severity / lifecycle stage.
- To reveal many rare disorders of the shoulder.

Please note that radiology reporting may only assess simple concerns such as fracture or dislocation. Direct viewing of films is often necessary for difficult or chronic shoulder disorders. Findings are sometimes missed or interpretations incorrect.

In some cases, both shoulders may require imaging for comparison. Neck x-rays are sometimes needed to assess for anatomical signs that may relate to your concern. This is normally required with any soft tissue imaging of the neck (MRI).

Ionizing (radiation) doses are very low with x-ray, with each x-ray equivalent to approximately two days of 'background' radiation in our environment.

\*\*\* North Shore Medical Imaging (NSMI.ca) & West Coast Medical Imaging (WCMI.com) currently provide direct viewing access. Please note a requisition form is required prior to booking x-ray appointments with most providers. Further interpretation of films can then occur on your next physiotherapy appointment. \*\*\*

### Types of shoulder x-rays

Under normal circumstances, x-rays take less time to access (1-3 weeks) than soft tissue scans (ultrasound & MRI).

**Standard x-ray views** typically include three x-rays for your shoulder (ER / IR and axillary views). A **full series** requires five x-rays per shoulder (add outlet and Zanca views). **Special views** are sometimes necessary to evaluate a particular concern including novel stress views.

Cameron can explain what imaging is required and offer some clinical notes for your ordering physician / NP. Please email: [imaging@shoulderphysio.ca](mailto:imaging@shoulderphysio.ca) and detail any discussion points during your appointment about imaging in your email request. Cameron will reply to this email with a short summary of your history and requirements for your physician / NP.

**Soft tissue imaging** is generally performed with ultrasound and / or MRI. There are advantages and disadvantages to each choice. These soft tissue images do not involve radiation, however x-rays are normally ordered together with soft tissue scans to offer a full overview of the shoulder.

## Ultrasound

Ultrasound studies use high frequency sound to build a detailed picture at the edge of the shoulder joint, specifically looking for cuff injury or significant bursitis (specifically the SASD - a common bursa of the shoulder). Evaluation of rotator cuff changes is necessary for surgical evaluation and differentiating sources of pain and weakness.

In more detailed investigations, it may also be used to assess bicep tendon changes (as it passes in front of the shoulder), scapula notch changes (nerve compression) and paralabral cysts (indirect signs of labral tears).  
Ultrasound image through bone.

Ultrasound provides high detail but can be prone to error due to the complexity of imaging, type of equipment and variations in sonography and reporting. High quality ultrasounds require hospital grade machinery, highly trained sonographers (or physicians) to perform the scan, and practitioners well trained in US interpretation.

Accuracy is typically high from the main Vancouver hospitals (St Pauls, UBC & VGH) and Canadian Diagnostics (private) based on comparisons to MRI and surgical observations.

Private ultrasounds are available for the shoulder costing approximately \$500-600.

## MRI

Magnetic Resonance Imaging (MRI) provides high detail of soft tissues and good detail of bone. MRI studies are interpreted by a radiologist and offer the gold standard of imaging for many disorders. Surgeons may have some different interpretations based on their understanding of MRI vs surgical observations. MRI does have some limitations such as difficulty in assessing calcification in the shoulder. MRI can evaluate bone edema, cartilage, ligament, tendon, muscle and labral (arthrogram study normally required) changes. It may also assess for cysts and inflammatory effects.

MRIs in the Lower Mainland typically take between 1-4 months in the public system and are currently available privately from several institutions.

Private MRIs for the shoulder are approximately \$900-1200. Whole body MRIs do not offer sufficient resolution for shoulder disorders.

## CT

Computed Tomography (CT) is a layered x-ray technique that allows for high definition of bone. It can be ordered when there is uncertainty about a fracture or a bony shape / problem needs to be imaged in detail. CT is normally recommended by radiology or requested by a surgeon when managing a fracture or evaluating pre-operative bony anatomy.

## Clinical Interpretation

All imaging is interpreted by a radiologist, however clinical interpretation is a critical factor in solving problems. This can be offered by your physician, surgeon or physiotherapist. Physiotherapists offering specialty practice will often review films to confirm the relevance of findings (and remedies that may be necessary) based on a combination of your imaging and clinical examination. Anatomical variants and tolerances are part of this evaluation.