



@physicaltherapyresearch

# RAPID RESEARCH

---

March 2021

## Inside This Week: Accuracy of MRI Scans

- 
- ✓ Accuracy of Shoulder MRI Scans

---

  - ✓ Low Back MRI Findings in People with No Pain

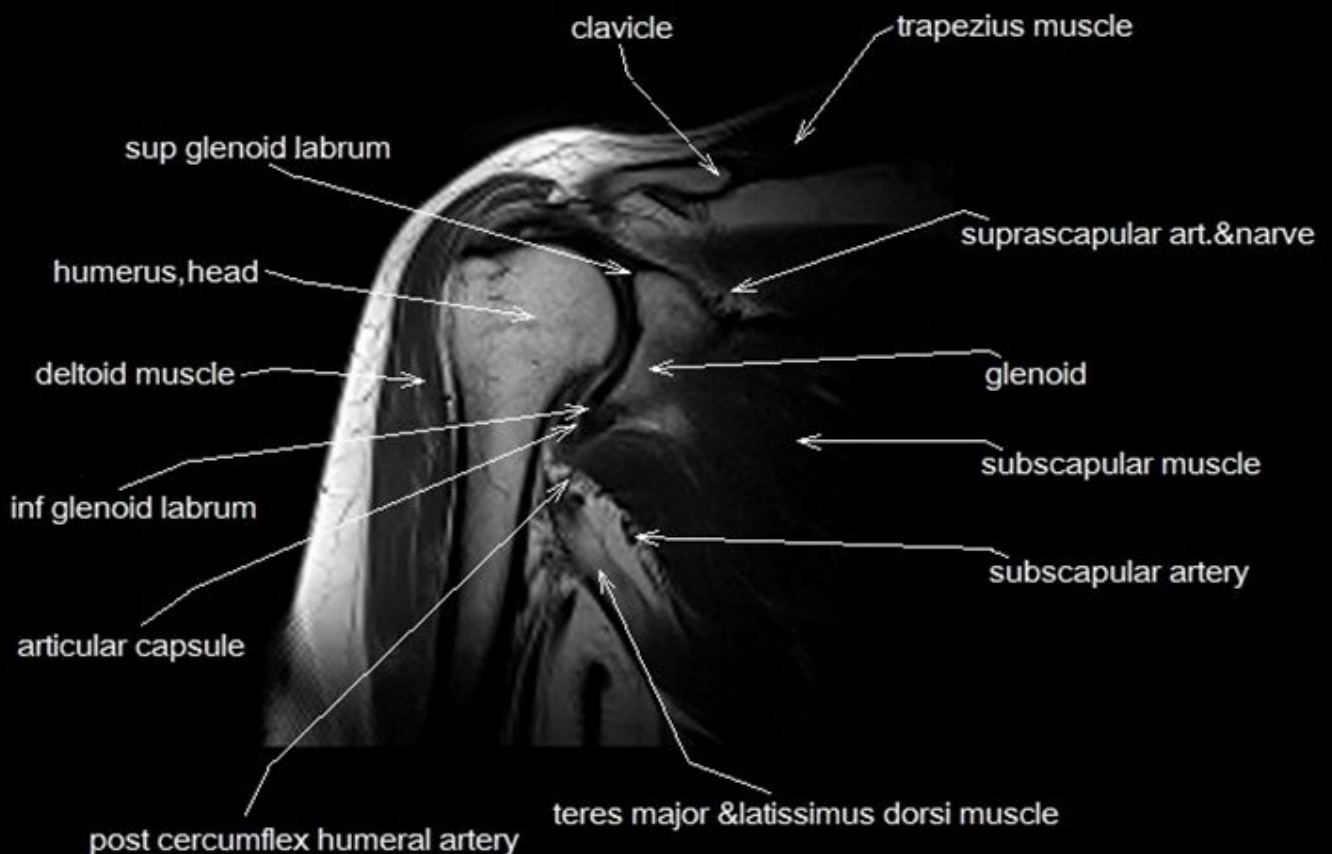
---

  - ✓ Low back MRI findings on the same patient at 10 different MRI centers



# ACCURACY OF SHOULDER MRI SCANS

This research evaluated MRI scans, of both shoulders, in 123 individuals with unilateral shoulder pain to test how accurately MRI findings correlate with patient symptoms.



# KEY FINDINGS

Rotator cuff tendinopathy and AC joint abnormalities were **highly prevalent in both shoulders** based on:

Radiologist's opinion (~90%)

Surgeon's opinion (~75%).

**No difference in prevalence of the MRI findings** between sides.

Higher prevalence of **full-thickness SS tear and shoulder OA** in painful shoulders vs. non-painful shoulders.

SURGEON vs. RADIOLOGIST:

Agreement on diagnosis varied from 44.71% to 98.14%.

The **best agreement (~90%)** were for:

Supraspinatus Tendon atrophy.

Shoulder OA.

LHB alterations.

Humeral Tuberosity cysts.

Agreement ranged from **slight to moderate**.

# MAIN TAKEAWAYS

**Similar prevalence of abnormal MRI findings were observed in both symptomatic and asymptomatic shoulders.**

**Most abnormal MRI findings were not different in frequency between painful and non-painful shoulders.**

**Common anatomic findings appear on MRIs and don't necessarily mean it is causing symptoms**

# LOW BACK MRI FINDINGS IN PEOPLE WITH NO PAIN

This research systematically reviewed 33 articles involving 3,110 asymptomatic individuals for the prevalence of spine conditions on asymptomatic people aged (20, 30, 40, 50, 60, 70, 80 years)



# KEY FINDINGS

## **Disk degeneration:**

**37%** of 20yr

to

**96%** of 80yr

## **Disk protrusion:**

**29%** of 20yr

to

**43%** of 80yr

## **Disk bulge:**

**30%** of 20yr

to

**84%** of 80yr

## **Annular fissure:**

19% of 20yr

to

**29% of 80 yr**

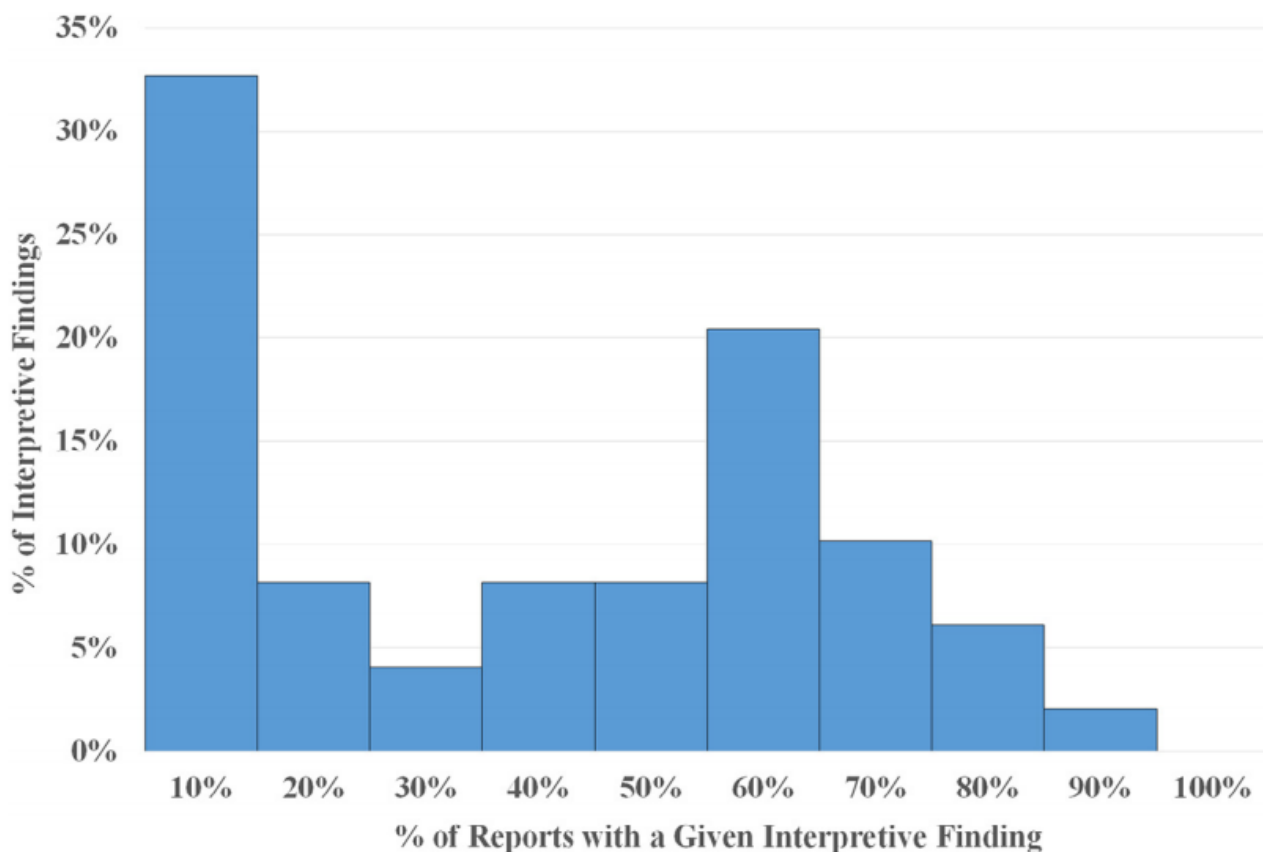
# MAIN TAKEAWAYS

Imaging findings of spine degeneration are present in **high proportions of asymptomatic individuals**, increasing with age.

Likely part of **normal aging and unassociated with pain**, but must be interpreted in the context of the patient's clinical condition.

# LOW BACK MRI FINDINGS ON THE SAME PATIENT AT 10 DIFFERENT MRI CENTERS

This study compared the interpretive findings reported for one patient scanned at 10 different MRI centers over a period of 3 weeks.



# KEY FINDINGS

## **Across all 10 MRI scans:**

49 distinct findings.

**0/49** findings were reported in all 10 MRI interpretations.

**Only 1** finding was reported in 9/10 MRI interpretations.

## **Of the interpretive findings:**

32.7% appeared only once across all 10 of the MRI interpretations.

A global Fleiss kappa statistic indicated **poor overall agreement**.

The average **interpretive error count** was **12.5±3.2** (both false-positives and false-negatives).

Average true-positive rate (**sensitivity**) of **56.4%±11.7**

**Miss rate** of **43.6%±11.7**.

# MAIN TAKEAWAYS

**High prevalence of interpretive errors.**

**Where a patient obtains his or her MRI and which radiologist interprets it, may have a direct impact on diagnosis, subsequent choice of treatment, and clinical outcome.**



# GIVE US YOUR FEEDBACK!

## MEMBERS

We are on a mission to make research more accessible, easier to interpret, and quicker to implement.

Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

[Leave Review](#)

