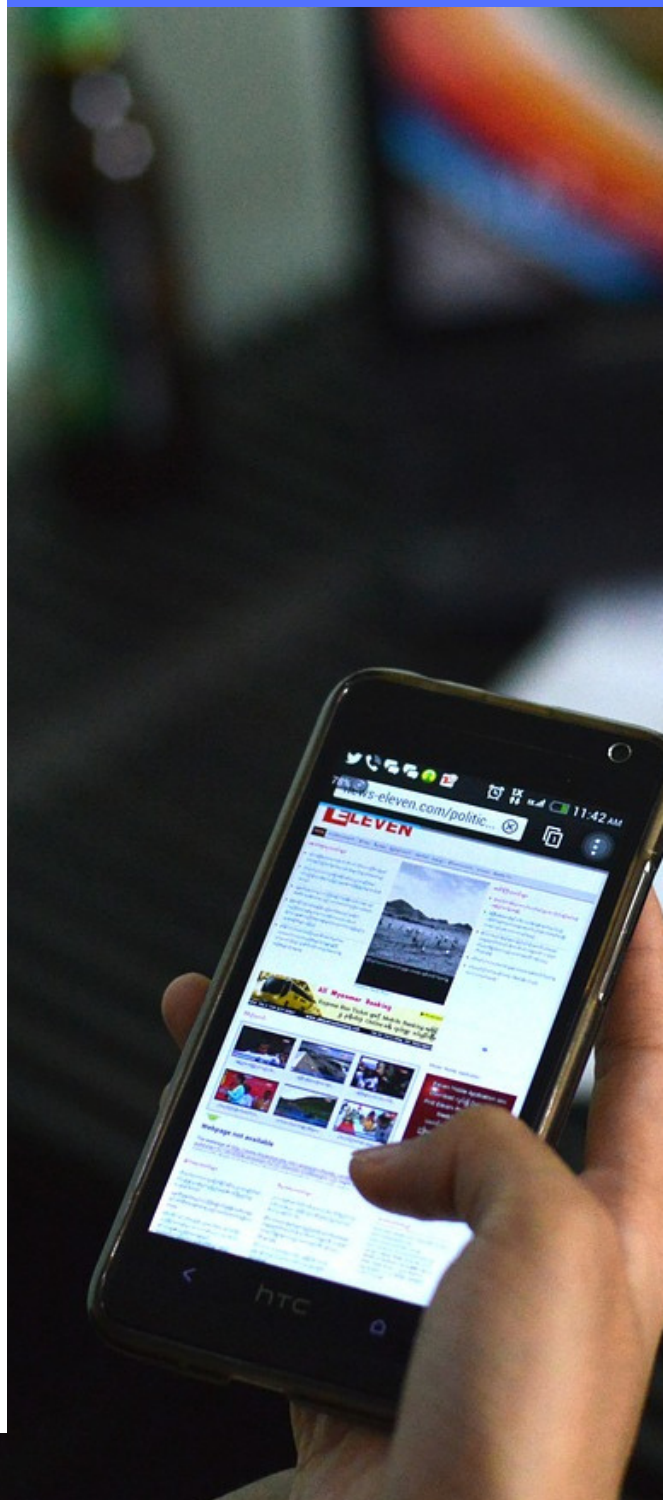
RAPID RESEARCH

@physicaltherapyresearch

February 2021

Inside This Week: Testing for Fractures



✓ Amsterdam Wrist Rules, Should you Send for an X-ray?

✓ Elbow Extension Test to Rule Out Elbow Fracture

✓ Accuracy of Ottawa ankle rules to exclude fractures of the ankle.

FEBRUARY 2021

AMSTERDAM WRIST RULES; SHOULD YOU GET AN X-RAY?

This study derived and externally validated a clinical decision rule that determines which patients with acute wrist trauma need an X-ray.

X-ray

NO X-ray

KEY FINDINGS

For **Distal Radial Fractures, Sensitivity of 98%** with:
Increased Age (increased per 10 years).
Swelling of the wrist.
Visible deformation.
Distal radius tender to palpation.
Pain on palmar flexion, supination, and/or ulnar deviation
Pain on radioulnar ballottement test.

For any **Wrist Fracture, Sensitivity of 98%** & **-ve predictive value of 90%**
Increased age and/or Male.
Swelling of the wrist and/or anatomical snuffbox.
Visible deformation.
Distal radius tender to palpation.
Pain on radial deviation.
Painful axial compression of thumb = less likelihood of any wrist fracture.

MAIN TAKEAWAYS

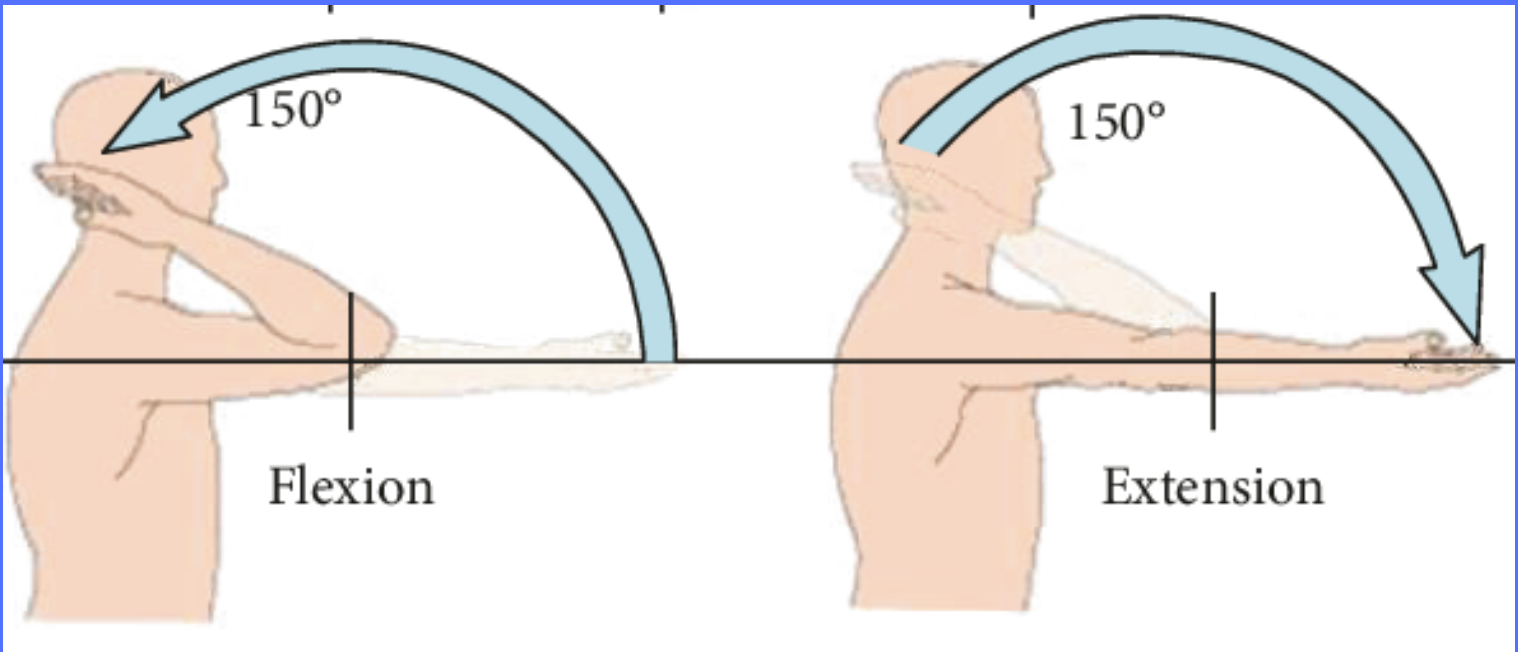
The Amsterdam Wrist Rules **have high sensitivity and negative predictive value.**

These rules provide a **useful screening tool to select patients with acute wrist trauma for X-rays.**

FEBRUARY 2021

ELBOW EXTENSION TEST TO RULE OUT ELBOW FRACTURE

This research determined whether full elbow extension as assessed by the elbow extension test can be used in routine clinical practice to rule out bony injury in patients presenting with elbow injury



KEY FINDINGS

602 patients **WITH Full Elbow Extension**
17 of these patients **had a fracture.**

1138 patients **WITHOUT full elbow extension**
521 of these patients **had a fracture.**

Overall:
Sensitivity - 97%
Specificity - 48%

Full elbow extension had a **negative predictive value** for fracture of **98.4% in adults** and **95.8% in children.**

MAIN TAKEAWAYS

The elbow extension test can be used in routine practice.

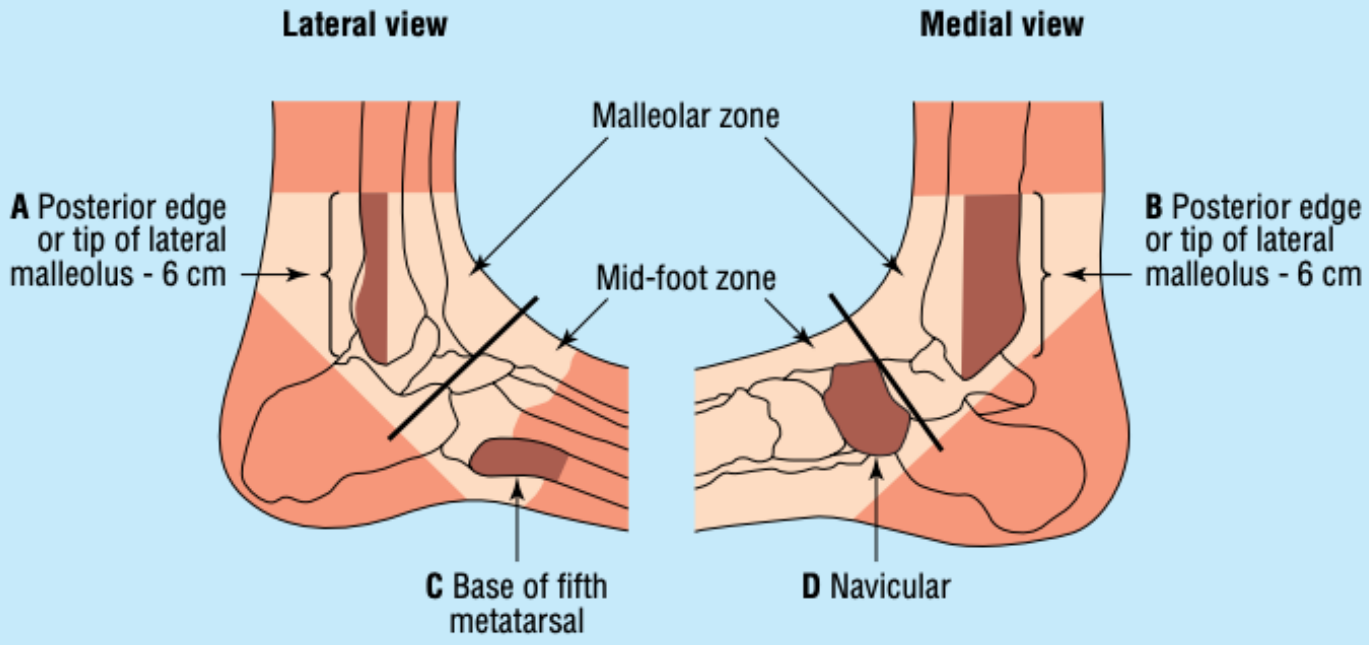
The test effectively rules out the need for radiography in patients with a recent elbow injury and full joint extension.

caution should be used in children and in patients with suspected olecranon fracture

FEBRUARY 2021

ACCURACY OF THE OTTAWA ANKLE RULES

This research summarized the evidence on accuracy of the Ottawa ankle rules, a decision aid for excluding fractures of the ankle and mid-foot.



A series of ankle *x* ray films is required only if there is any pain in malleolar zone and any of these findings:

- Bone tenderness at **A**
- Bone tenderness at **B**
- Inability to bear weight both immediately and in emergency department

A series of ankle *x* ray films is required only if there is any pain in mid-foot zone and any of these findings:

- Bone tenderness at **C**
- Bone tenderness at **D**
- Inability to bear weight both immediately and in emergency department

KEY FINDINGS

27 studies reporting on 15,581 patients were used for meta-analysis.

Sensitivity:
99.6% to 100% within 48 hours of injury.

Specificity:
47.9% on average.

Negative likelihood ratios:
Ankle & mid-foot 0.08

Negative likelihood ratio for both ankle and mid-foot in **children was 0.07.**

Following the rules, a **less than 1.4% probability of actual fracture** in these subgroups existed.

MAIN TAKEAWAYS

Evidence **supports the Ottawa ankle rules** as an **accurate instrument** for excluding fractures of the ankle and mid-foot.

It has a **sensitivity of almost 100%** and a **modest specificity.**

It's use should **reduce the number of unnecessary radiographs** by **30-40%.**

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