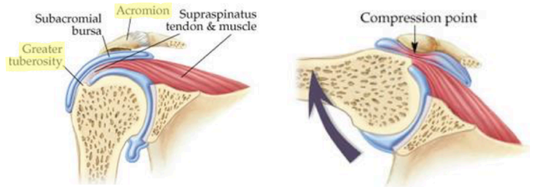
Shifting the Paradigm: Enhancing the Clinical Exam by Utilizing Dynamic Ultrasound to Rethink Shoulder Impingement

Richard W. Kim, Philip S. Stephens, Scott J. Primack DO

ExEd Institute

Subacromial shoulder **impingement** defined as

→ Pain due to interface between the acromion and greater tuberosity during shoulder flexion commonly accepted as occurring at 90°



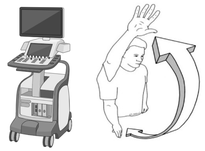
→ We believe pain **attributed to impingement** should occur far short of the 90° mark commonly evaluated through PE tests such as **Hawkins' test** & **Neer's sign**

Goal: Use **ultrasound** to **determine the angle** where the acromion and greater tuberosity interface in **healthy shoulders**

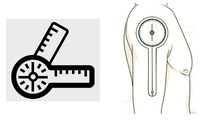
Design:

n = 108 healthy shoulders

Physiatrist specializing in MSK US



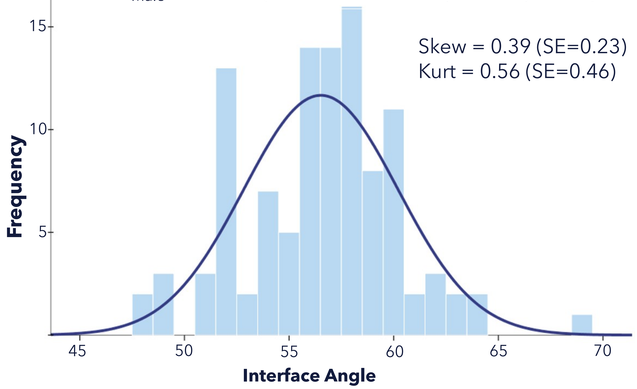
Monitored w/ US + shoulders passively flexed in scapular plane to interface



Interface angles measured w/ goniometer

Results:

Mean $_{all}$ **56.5°** (95% CI 55.8-57.2, SD 3.7, n=108)
Mean $_{Female}$ 54.7° (95% CI 53.9-55.6, SD 2.9, n=47)
Mean $_{Male}$ 57.9° (95% CI 56.9-58.8, SD 3.7, n=61)



Conclusions:

→ Interface angle of acromion and GT had previously **never been studied**

→ Shoulder pain attributed to **subacromial impingement should occur at ~56.5°** flexion – what's going on beyond this point?

→ Must **rethink** etiologic basis of common PE **tests for anterior shoulder pain**

→ **Normative data established** – stage set for **future investigation** into pathologic shoulders

Subacromial **Impingement** does **not** occur at **90°**

We used **ultrasound** to show pain attributed to 'impingement' should occur near **56.5°**

It's time to **rethink impingement** and the physical exam of the shoulder