



ROTATOR CUFF DISORDERS/IMPINGEMENT

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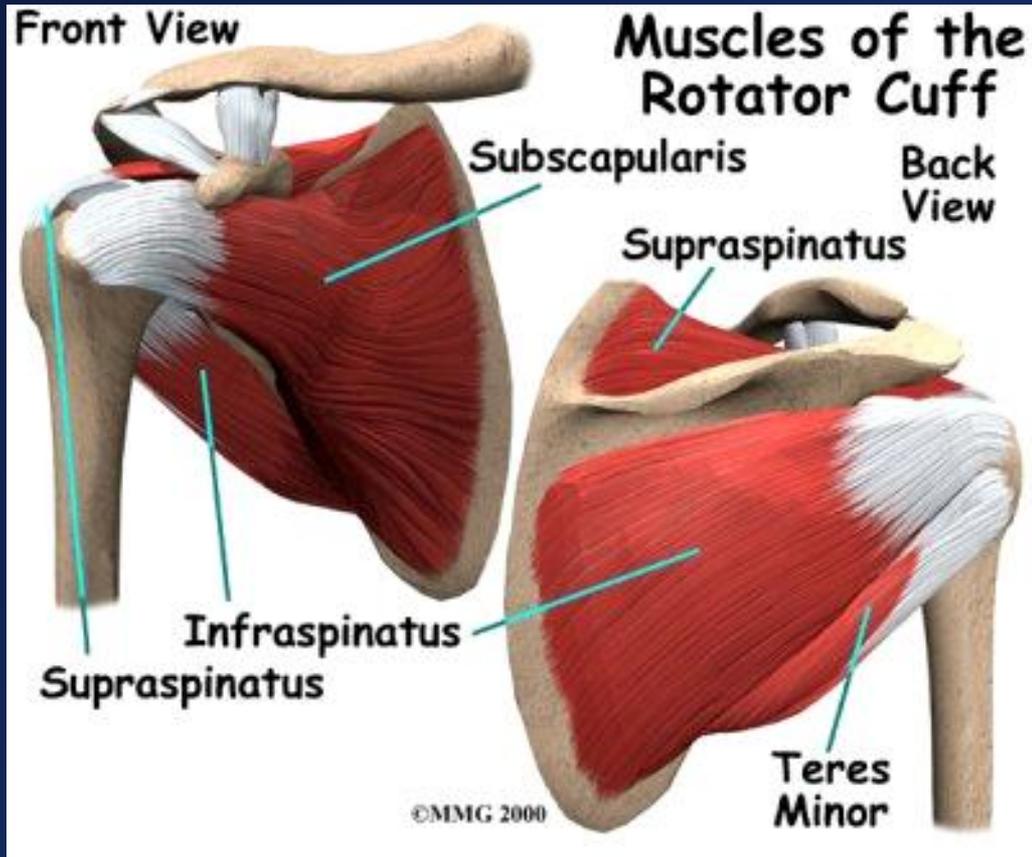
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BONE SCHOOL POST GRADUATE TEACHING 04/03/2012

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- ROTATOR CUFF FUNCTION
- ETIOLOGY
- SPECTRUM OF DISORDERS
- CLINICAL DIAGNOSIS
- INVESTIGATION
- OUTLINE OF MANAGEMENT



■ **FUNCTION**

- ARM ELEVATION AND ROTATION
- Centralises and depresses the humeral head in the Glenohumeral joint.

■ **ROTATOR CUFF DYSFUNCTION**

- the humeral head ride upwards close to the acromion
- Risk of causing impingement.



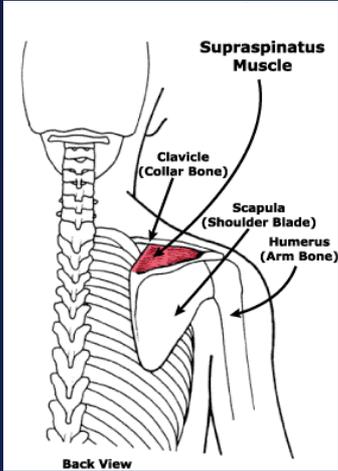
Impingement /Rotator cuff related shoulder pain

- Most common cause of shoulder pain (peak ages 40-60)
 - Subacromial impingement syndrome
 - Rotator cuff problems
- Athletic injuries
 - Shoulder: 8-13% of all athletic injuries

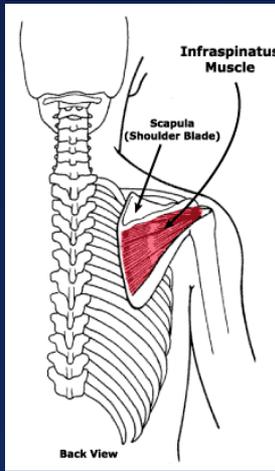


ROTATOR CUFF MUSCLES AND TEAR

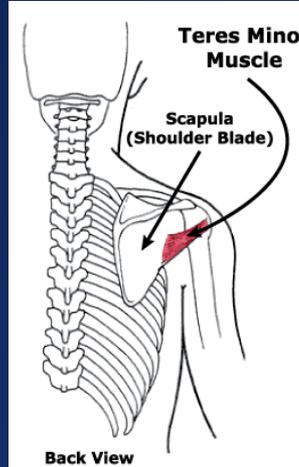
SUPRASPINATUS



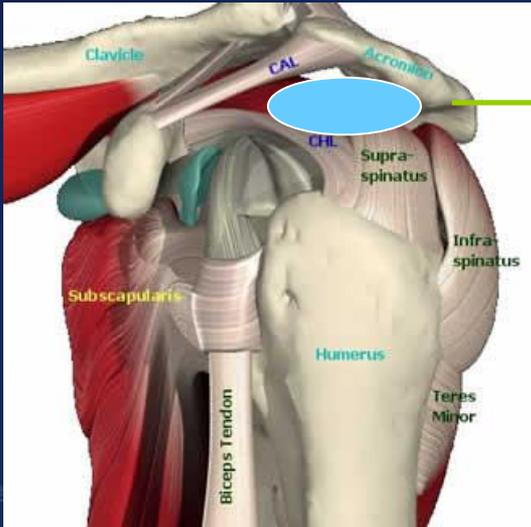
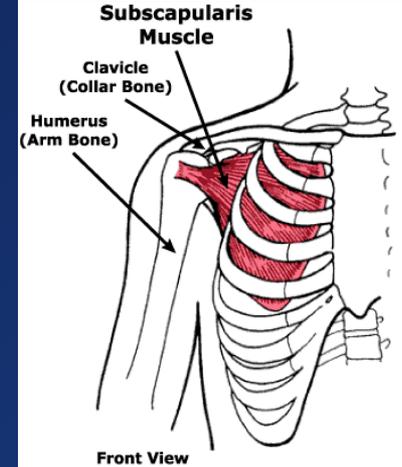
INFRASPINATUS



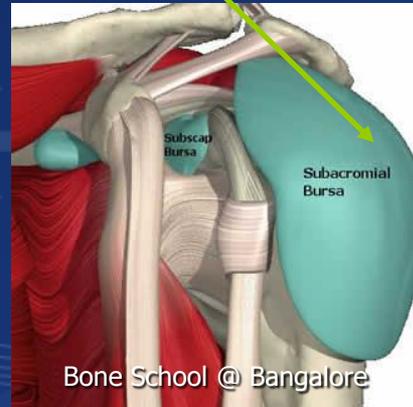
TERES MINOR



SUBSCAPULARIS

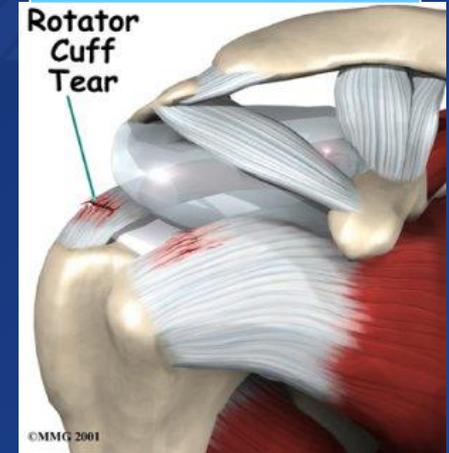


SUBACROMIAL BURSA



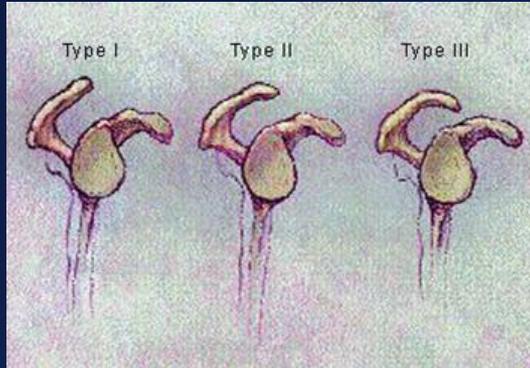
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SUPRASPINATUS TEAR



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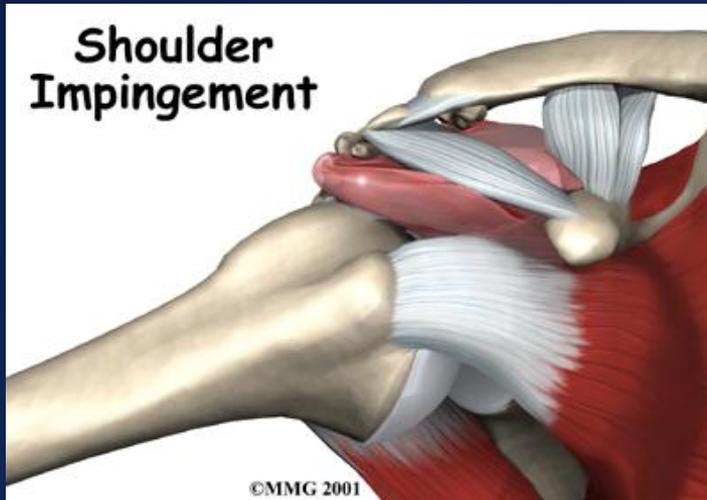
MULTIFACTORIAL

- **VASCULARITY**- Zone of **HYPOVASCULARITY** In the anterior supraspinatus approximately 1 cm before insertion
- **EXTRINSIC COMPRESSION**
- **TRAUMA**
- **DEGENERATIVE**

- **MALUNITED GT**
- **MOBILE OS ACROMIALE**
- **INSTABILITY**
- **CALCIFIC TENDINITIS**
- **IATROGENIC**



Impingement pain



- Abduction of shoulder or forward flexion compresses structures in between Acromion and Humeral head
- Pain occurs as there is inflamed structure – Subacromial bursitis and also Rotator cuff tendinopathy

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DIAGNOSIS

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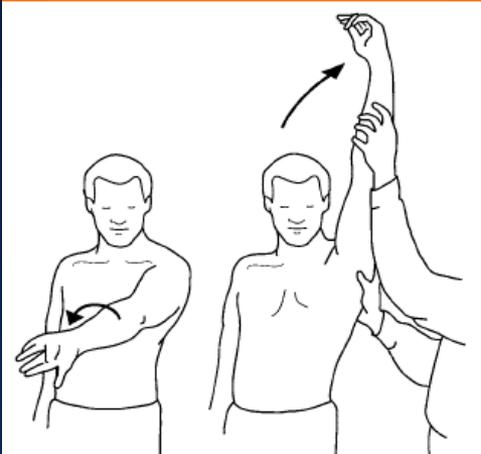


- Middle age
- Pain due to overhead activities
- Reduced Range of motion
- Special tests

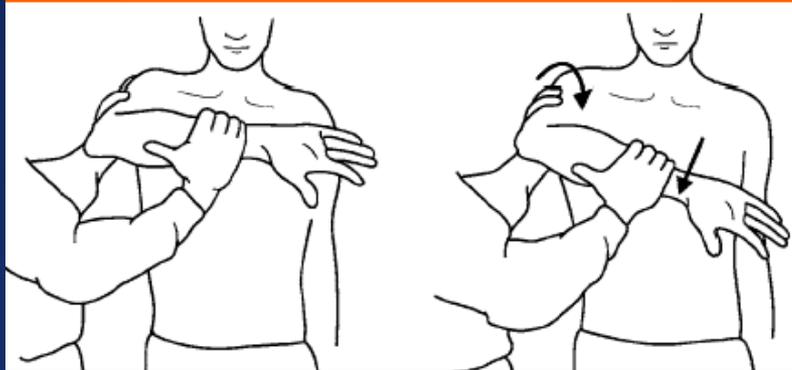


CLINICAL TESTS

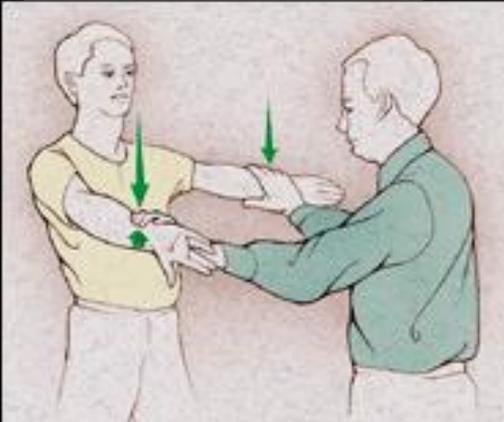
NEER'S SIGN



HAWKINS SIGN



JOBE'S TEST FOR SUPRASPINATUS



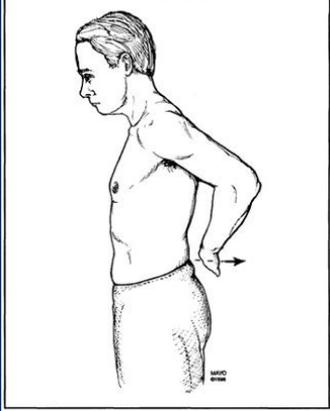
DROP ARM TEST



EXTERNAL ROTATION TEST FOR INFRASPINATUS



SUBSCAPULARIS GERBER'S LIFT OFF TEST





■ Neer – 3 stages of RC disease

– Stage I

- Hemorrhage and cuff edema

– Stage II

- Cuff fibrosis

– Stage III

- Cuff tear

– No distinction for PTRCT





IMPINGEMENT SPECTRUM

SUBACROMIAL
BURSITIS



ROTATOR CUFF
TENDINOPATHY



ROTATOR CUFF TEAR

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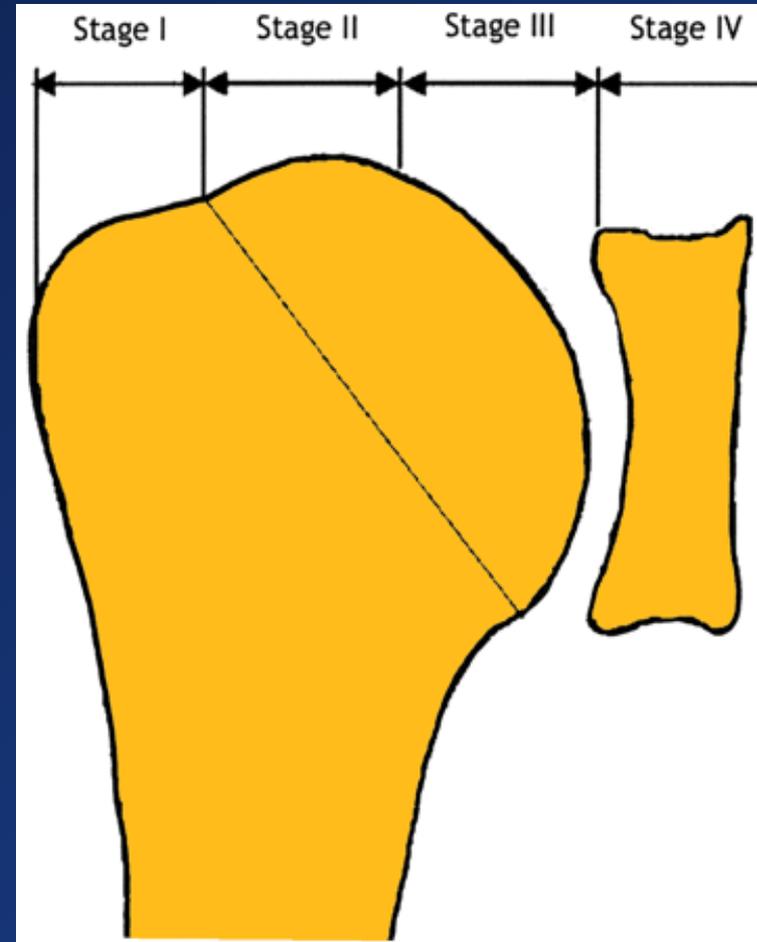
■ Ellman

- Considers site and extent of partial tears
- Location
 - Articular vs bursal surface vs intratendinous
- Grade
 - I - <3mm
 - II – 3-6mm
 - III - >half cuff thickness





- SMALL - 1cm
- MEDIUM - <3cm
- LARGE - <5cm
- MASSIVE - >5cm



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Imaging

- X ray – AP, Axillary, Outlet view
 - Acromion Morphology
 - Acromio humeral distance
 - Changes in the greater tuberosity
 - Look for GH joint changes
 - Also look for AC joint



Ultrasound – Detects fluid

- Detects fluid within substance of RC
- Wiener et al – sensitivity of 94% and specificity of 93%
- Need experienced tech and interpreter



MRI Scan

- Ossification of Coracoacromial ligament
- Subacromial spur
- Signal changes in the Subacromial bursa $> 3\text{mm}$ thickness
- Integrity of the rotator cuff muscles
- Quality of the rotator cuff muscles – To assess fatty changes in the muscles





■ Non-operative

– Activity modification

– NSAID

– Injections

– PT

- Eliminate contractures and regain full ROM

- Strengthen RC and pericapsular musculature

- Restore proper shoulder mechanics





■ Operative

- Failed non-op treatment (6 months)
- Options
 - Tear debridement
 - Acromioplasty + tear debridement
 - Cuff repair +/- acromioplasty
- Open vs arthroscopic assisted vs complete arthroscopic





Arthroscopic acromioplasty/Subacromial decompression

- Posterior portal – Camera portal
- Lateral portal – Working portal
- Subacromial bursectomy
- Anterolateral 1/3rd of Acromion – 5mm resected



Acromion
being resected



OPEN PROCEDURE

- Allows excellent exposure of bursal surface of RC
- Allows palpation of cuff to detect intratendinous PTRCT (Partial thickness rotator cuff tear)
- Color test (Fukuda)
 - Inject joint with dye and take it through ROM
 - Torn tissue stained by dye
 - Bicep tendon sheath and rotator interval also uptake dye



ARTHROSCOPIC

- Allows visualization of articular surface and Bursal surface of cuff
- Able to see far into the subacromial space and helps to release the adhesions
- Assess GH joints
 - Look for Hill-Sachs, labral lesions etc
- PTRCT found in 15-33% of patients undergoing arthroscopic treatment of impingement syndrome

RC TEAR



HUMERAL HEAD



RC Tear margin

Humeral head

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Complications

- Infection
- Adhesive capsulitis
- Dysfunction of Coracoacromial arch and can cause proximal migration of the humeral head
- Nerve damage





Postoperative Rehabilitation

■ If Cuff repair done

- In sling for 6 weeks
- Do passive movements through full range for six weeks
- Active assisted after four weeks
- Active movements from six weeks

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THANK YOU

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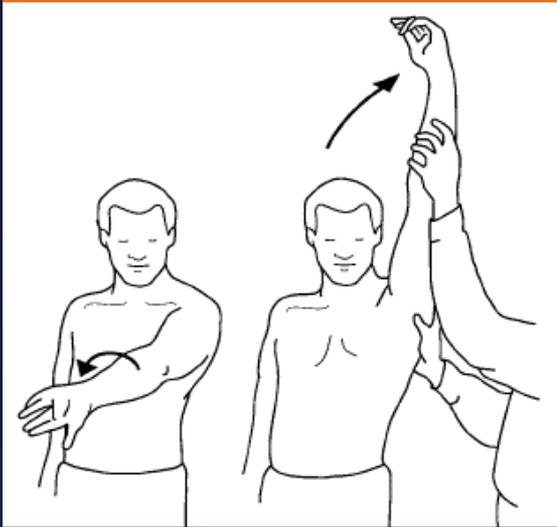


- As the arm is elevated - Rotator cuff centralises and depresses the humeral head in the Glenohumeral joint.
- Rotator cuff dysfunction – the humeral head would ride upwards close to the acromion at risk of causing impingement.



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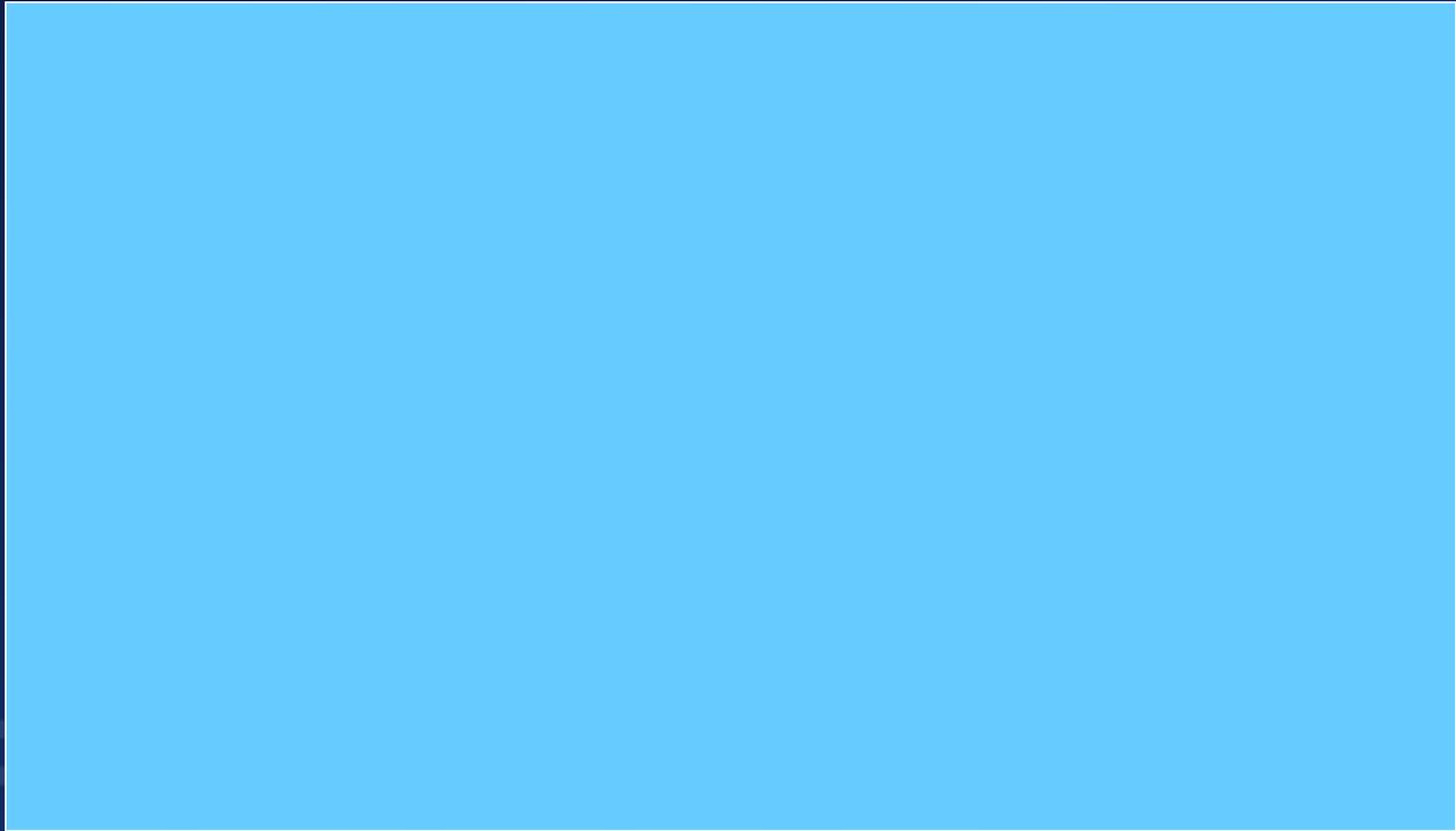
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