

# Frozen Shoulder

An Update...

Dr Paul Annett

[www.orthosports.com.au](http://www.orthosports.com.au)

29-31 Dora Street, Hurstville



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**Sport & Exercise Medicine Physician**

# Frozen Shoulder

- What's changed since 2016?
- Evidence based & Practical Tips
- More time!



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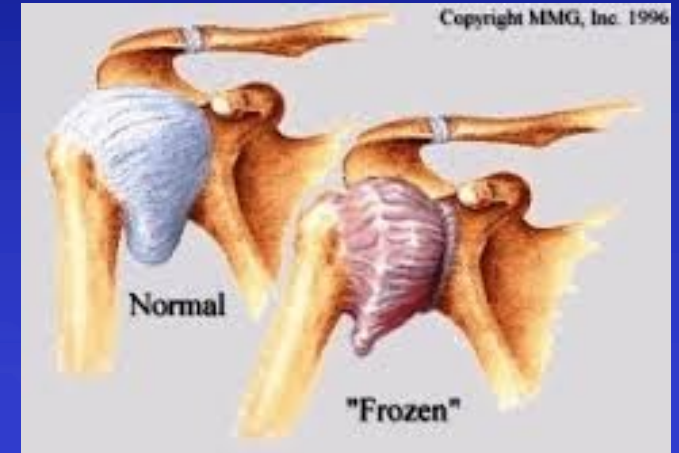
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Time	Event	Who
07:30 – 08:00	Refreshments	
08:00	Welcome Message	Dr Doron Sher
	Dupuytren's disease: can it be treated without an operation	Dr Kwan Yeoh
	An approach to low back pain diagnosis	Dr Mel Cusi
	Ankle replacement: The good the bad and the ugly	Dr John Negrine
08.55	Panel Discussion	
	Osteo-Chondral transplantation (OATS)	Dr Ivan Popoff
	Chondral grafting and HTO	Dr Doron Sher
	The National Joint Replacement Registry	Dr Andreas Loeffler
10.05	Panel Discussion	
10:30 – 11:00	<b>Morning Tea</b>	
	Physio question	Dr Todd Gothelf
	Assessment of the stiff shoulder	Dr Jerome Goldberg
	The natural history and treatment of capsulitis	Dr Paul Annett
	The non-operative treatment of the osteoarthritic shoulder	Dr John Best
	Management of the post-operative stiff shoulder including arthroscopy	Dr Todd Gothelf
	Arthroplasty of the stiff and arthritic shoulder	Dr Jerome Goldberg
12:15	Panel Discussion	
12:45	Close	

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# Frozen Shoulder

- Adhesive (Stuck)
- Capsulitis
- (inflammation of the capsule)
- “a condition of uncertain aetiology that is characterized by clinically significant restriction of active AND passive shoulder motion that occurs in the absence of a known intrinsic shoulder disorder.”



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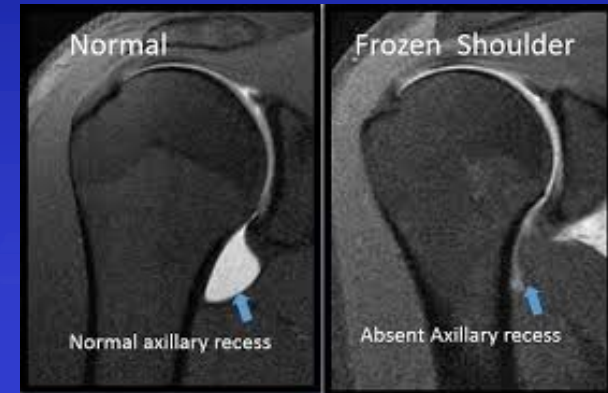
# Frozen Shoulder

- What do we know?
- Affects 2-5% population (10-20% diabetics)
- Affects women > men
- 5<sup>th</sup> – 6<sup>th</sup> decades : “50’s shoulder”
- 10-20% bilateral



# Frozen Shoulder - Causes

- Ideopathic!
  - Capsular inflammation
  - Capsular thickening/Fibrosis
- Hormonal. (Diabetes, thyroid, dyslipidaemia)
- ?Autoimmune – Absent features/markers
- Post-traumatic
- Post-operative – shoulder immobilization
- Neurological – Parkinson's disease



# Frozen Shoulder – Other Causes

- Post vaccination
  - Local inflammation
  - Pain/reduced ROM in 48/24. Not settled in 1 week
  - Post covid vaccination – 5 cases



# Frozen Shoulder – Other Causes

- Cerebral defence mechanism
  - Non-dominant/L arm
  - ROM better in MUA
  - Improvements with mirror therapy
- Low grade infection. (*Propionibacterium acnes*)



A Comprehensive View of Frozen Shoulder: A Mystery Syndrome

[Daniel de la Serna](#),<sup>1</sup> [Santiago Navarro-Ledesma](#),<sup>2,\*</sup> [Fany Alayón](#),<sup>1</sup> [Elena López](#),<sup>1</sup> and [Leo Pruijboom](#)<sup>1,3</sup>



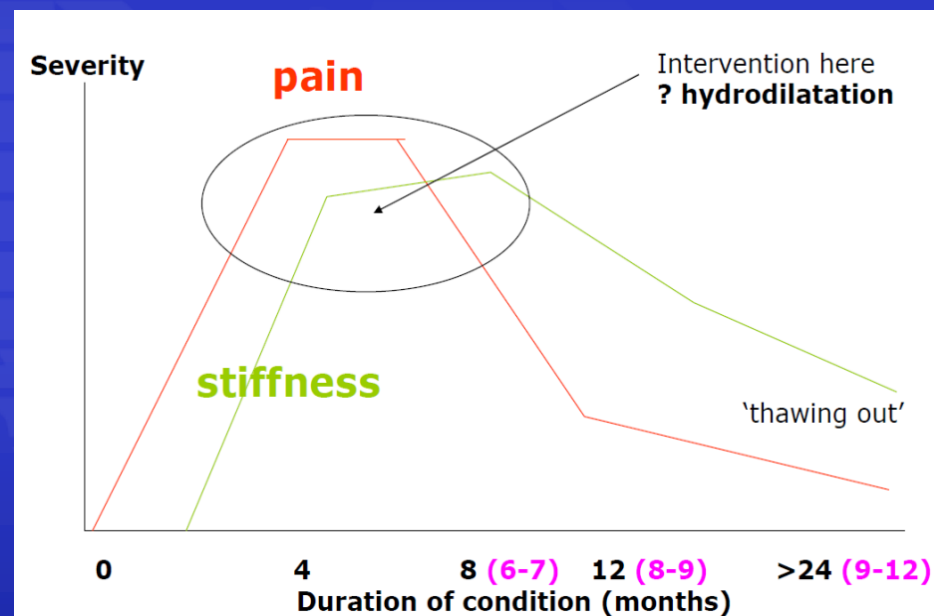
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# Frozen Shoulder

- Natural history generally favourable
- 3 phases
  1. Freezing (2-9mo)
  2. Frozen (4-12mo)
  3. Thawing (5-24mo)



- May take 12-24 months for resolution



# Frozen Shoulder

History is essential!

- Female
- Age 50-60
- Spontaneous/insidious onset
- Constant pain (including night)
- Diabetes/thyroid/The other side
- ‘The GP cascade’



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# Frozen Shoulder

## Clinical Assessment

- Loss of Active = Passive ROM
- Check passive ER carefully (one arm at a time)
- Can't get into AB/ER position
- Reduced HBB
- Cuff strength maintained (may have pain)



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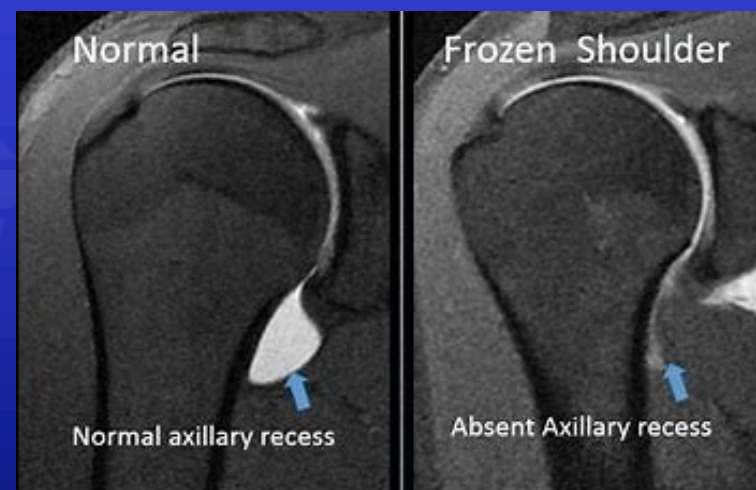
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# Frozen Shoulder

## Imaging

- XR – Mandatory
- US – Pointless
- MRI – Can be supportive & provide additional information.



# Frozen Shoulder



- Improvement generally expected BUT
  - Some may have mild persistent loss of motion
  - A small percentage maintain significant long term restrictions
  - ‘Effective treatment shortens the duration of symptoms and disability’



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# Non-Operative Treatment

- Education – Information is therapeutic
- Re-assurance/Diagnosis
- Empathy – Pain may be severe
  - Loss of sleep
  - Loss of function



# Non-Operative Treatment Medications

- Pain medication – Simple analgesics
- Anti-inflammatories
- Avoid opiates
- Oral prednisone
  - Cochrane '06 'silver level' evidence for improved pain/ROM/function.
  - Side effects



# Non-Operative Treatment Physiotherapy

- 2 X Cochrane reviews 2014.
- 1. Electrotherapy
- 2. Manual/Exercise therapy
  - No randomised trials vs placebo/no treatment
  - Not as effective as IA steroid
  - Currence '03. IA steroid + physio improved ROM over steroid + HEP
  - Consider the diagnosis/Work within patients' pain





# Non-Operative Treatment Exercise

- Exercise

ROM – Active / passive

Flexion/Rotation

Strength – Scapula stabilizers/rotator cuff

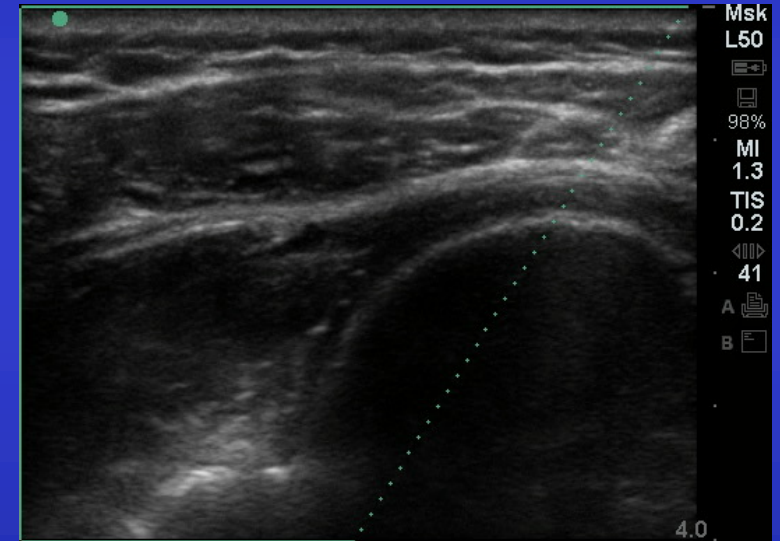




# Non-Operative Treatment

## Steroid Injection +/- hydrodilatation

- Why Cortisone or hydrodilatation?
- IA steroid
  - Carette '03
  - IA CSI + HEP better than placebo. Physio helps ROM
- IA steroid + HD
  - Buchbinder '04
  - Improved pain/ROM/function @ 3 & 6/52



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# Non-Operative Treatment

## IA Steroid Vs Steroid + HD

- Cochrane – Buchbinder et al '08
- 'Silver' level evidence for IA steroid + HD
- Improves pain @ 3/52
- Improves disability @ 3, 6 & 12/52
- May not be better than steroid alone



Original Investigation | Orthopedics

# Comparison of Treatments for Frozen Shoulder A Systematic Review and Meta-analysis

Dimitris Challoumas, MD; Mairiosa Biddle, MD; Michael McLean, MD; Neal L. Millar, MD, PhD

- JAMA 2020
- IA CSI within 12 months beneficial
- Short term, IA CSI > all modalities
- IA CSI + physio > IA CSI or physio alone
- IA CSI + Hydro most effective Rx @ 12/52
- Physio > control for ROM
- Physio/Acc = Physio alone



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# Non-Operative Treatment

## Cortisone injection + saline hydrodilatation



# Cortisone HD – Side Effects

- Infection – 1:20,000 cases
- Post injection pain
- Steroid issues
  - Raised BSL
  - Steroid flare



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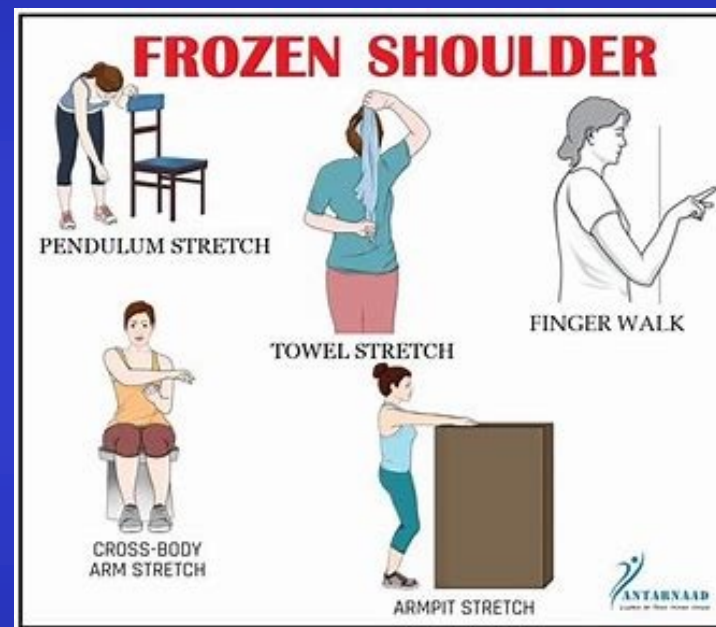
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# Post-injection treatment

- Manipulation Under LA
- Initial ROM program
  - Flexion
  - Rotation
- Perform 2-3 X daily
- Physio at 1 week
- Review 4-6 weeks for re-injection
  - Up to a course of 3



# Outcomes of Non-Operative Treatment

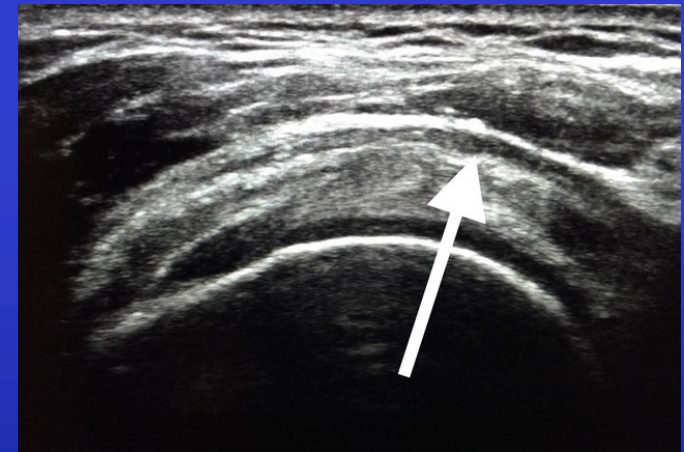
- 293 Patients between Feb 2019 and Sept 2024
- 197 F / 96 M (67% females)
- Average age 54 (Range 28-84)
- 26 Diabetics (8%)
- 17 previous (5%)
- 16 WC (5%)
- 72 SA injection (25%) - >80% unhelpful



# Outcomes of Non-Operative Treatment

## Imaging

- 84/293 (28%)– MRI. 85% diagnosis capsulitis
- 71/293 (24%)– US.
- 28/293 (9%)– XR
- 48/293 (16%)– XR/US



US - 52% - 'Bursitis' . Only 5% normal!!!



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# Outcomes of Non-Operative Treatment

- 192/291 – Pain improved  $>30\%$  VAS (65%)
- 16% improved  $< 30\%$
- 15/291 – No improvement (5%)
- 42 No follow-up (10 cancelled/32 no show)  
14%



# Outcomes of Non-Operative Treatment

- 2<sup>nd</sup> injection - 193/291 (66%)
- Declined 2<sup>nd</sup> injection 46/291 (15%)
- 3<sup>rd</sup> injection – 42/291(14%)
  
- No significant complications (no infections!)
- 2 cases of suprascapular n palsy. Resolved within 30mins



# Outcomes of Non-Operative Treatment

## Hydrodilataion and stretching **ORTHOSPORTS** Results – observational study



- 305 patients over 5 years; follow-up 3-24 mths
- 216 female, 89 male
- Age 53 years (range 37-66 years)
- Pre procedure active and passive ROM, VAS pain scores, medication use
- Results:
  - 75% patients – good or excellent
  - 15% have the injection repeated.
  - 100% reduced medication use
  - This is reflected in improved pain scores (using a VAS) and ROM testing.



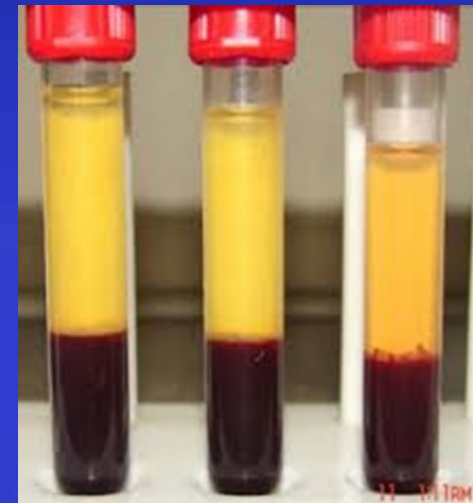
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# Other Novel Treatments

- PRP injection
- Numerous small trials
  - Better than placebo.
  - Equivalent to cortisone
- Suprascapula nerve block



# Surgery

- Generally not indicated
  - Prolonged symptoms
  - Severe loss of movement

Lancet 2020

- Capsular release vs MUA vs CSI/Physio
- All groups improved. None superior

Management of adults with primary frozen shoulder in secondary care (UK FROST): a multicentre, pragmatic, three-arm, superiority randomised clinical trial

*Amar Rangan, Stephen D Brealey, Ada Keding, Belen Corbacho, Matthew Northgraves, Lucksy Kottam, Lorna Goodchild, Cynthia Srikesavan, Saleema Rex, Charalambos P Charalambous, Nigel Hanchard, Alison Armstrong, Andrew Brooksbank, Andrew Carr, Cushla Cooper, Joseph J Dias, Iona Donnelly, Catherine Hewitt, Sarah E Lamb, Catriona McDavid, Gerry Richardson, Sara Rodgers, Emma Sharp, Sally Spencer, David Torgerson, Francine Toye, on behalf of the UK FROST Study Group*



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# Frozen Shoulder – Take Home Messages

- Make the diagnosis!
- Educate – Self-limiting condition
- Medicate & Physiotherapy
- Maintain function within pain limits
- Consider the early use of IA steroids +/- hydrodilatation
- Surgery in recalcitrant cases only



# Thank You

