MDT & Sport

Real-life Cases

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Objectives

MDT principles

Considerations

Return to sport

Case 1: Treatment of an Olympic Lifter

- Nationally ranked Olympic lifter
- 6 months of R anterior knee pain
- Previous treatments
  - Sports PT
  - Chiropractic
  - Massage
  - Acupuncture
  - Injections
- MRI: unremarkable

HISTORY

Present symptoms: **Right anterior knee**

Present since: **6 Months** — *Improving / **Unchanging** / Worsening*

Commenced as a result of: **Felt a "pop" while performing a split jerk** — *Or No Apparent Reason*

Symptoms at onset: **Right anterior knee** — Paraesthesia: *Yes / **No***

Spinal history: **Nil** — *Cough / Sneeze +ve / **-ve***

Constant symptoms: — **Intermittent Symptoms:**

Worse *bending   sitting / rising / first few steps   standing   walking   **stairs**   **squatting***
am / as the day progresses / pm   when still / on the move   Sleeping: *prone / sup / side R / L*
Other

Better *bending   sitting   standing   walking   stairs   squatting / kneeling*
am / as the day progresses / pm   when still / on the move   Sleeping: *prone / sup / side R / L*
other **Avoiding these activities**

Continued use makes the pain: *Better   Worse   **No Effect***   Disturbed night *Yes / **No***

Pain at rest *Yes / **No***   Site: *Back / Hip / Knee / Ankle / Foot*

Other Questions: *Swelling   Clicking / Locking   Giving Way / Falling*

EXAMINATION

POSTURE

Sitting ***Good*** */ Fair / Poor* Correction of Posture: *Better /* ***Worse*** */ No Effect / NA* Standing: *Good / Fair / Poor*

Other observations: ______________________________

NEUROLOGICAL: NA / Motor / Sensory / Reflexes / Dural Nil

BASELINES (pain or functional activity): Squat (ERP) Lunge (ERP)

EXTREMITIES *Hip /* ***Knee*** */ Ankle / Foot*

MOVEMENT LOSS	Maj	Mod	Min	Nil	Pain
Flexion				x	
Extension				x	
Dorsi Flexion					
Plantar Flexion					

	Maj	Mod	Min	Nil	Pain
Adduction/Inversion					
Abduction / Eversion					
Internal Rotation					
External Rotation					

Passive Movement (+/- over pressure) (note symptoms and range):	PDM	ERP
Flexion: nil loss, painful		X
Extension: nil loss, no effect		

Resisted Test Response (pain) Resisted extension: painful

Resisted flexion: no effect

Other Tests Step down test (+)

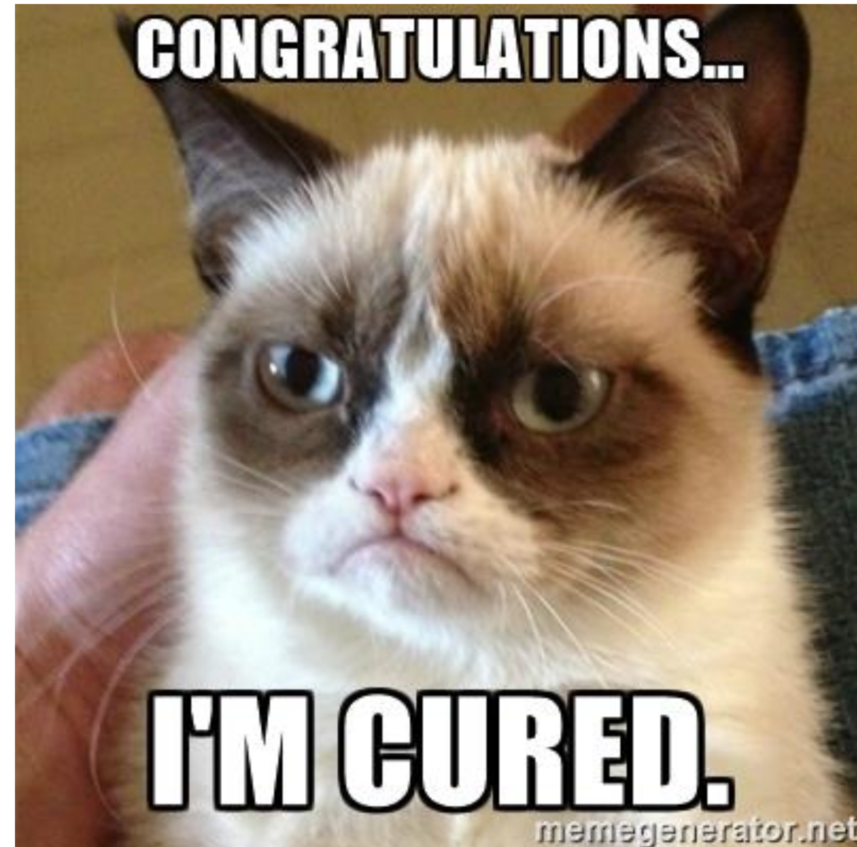
Movement Exam.

Baseline Symptoms **Pain with squat**

Repeated Tests	**Symptom Response**		**Mechanical Response**	
Active/Passive movement, resisted test, functional test	**During –** Produce, Abolish, Increase, Decrease, NE	**After –** Better, Worse, NB, NW, NE	**Effect –** ↑ or ↓ ROM, strength or key functional test	No Effect
Rep ext unloaded	NE	NE		X
Rep ext loaded	NE	NE		X
Rep ext with ER	NE	NE		X
Rep flexion unloaded	NE	NE		X
Rep flexion loaded	P	NW		X
Resist extension	P	NW		X

Remodeling regimen

- Baseline: pain with squat
- Repeated movements: no effect
- Resisted testing: produce, no worse with eccentrics
- Symptoms resolved in six weeks but needed to consider sport specific requirements



Recovery of function: Requisite mobility

- Single joint vs. multi joint
- Specific demands
- Functional movement patterns

Recovery of Function: Load tolerance

- Break testing not sufficient
- Local vs. global
- Specific to sport
- Dysfunction vs. Derangement

Recovery of function: Power output energy requirements

- Movement must mimic specific demands without pain/obstruction
- Fatigue factor
- Adaptation to pain

Recover of function: Return to sport

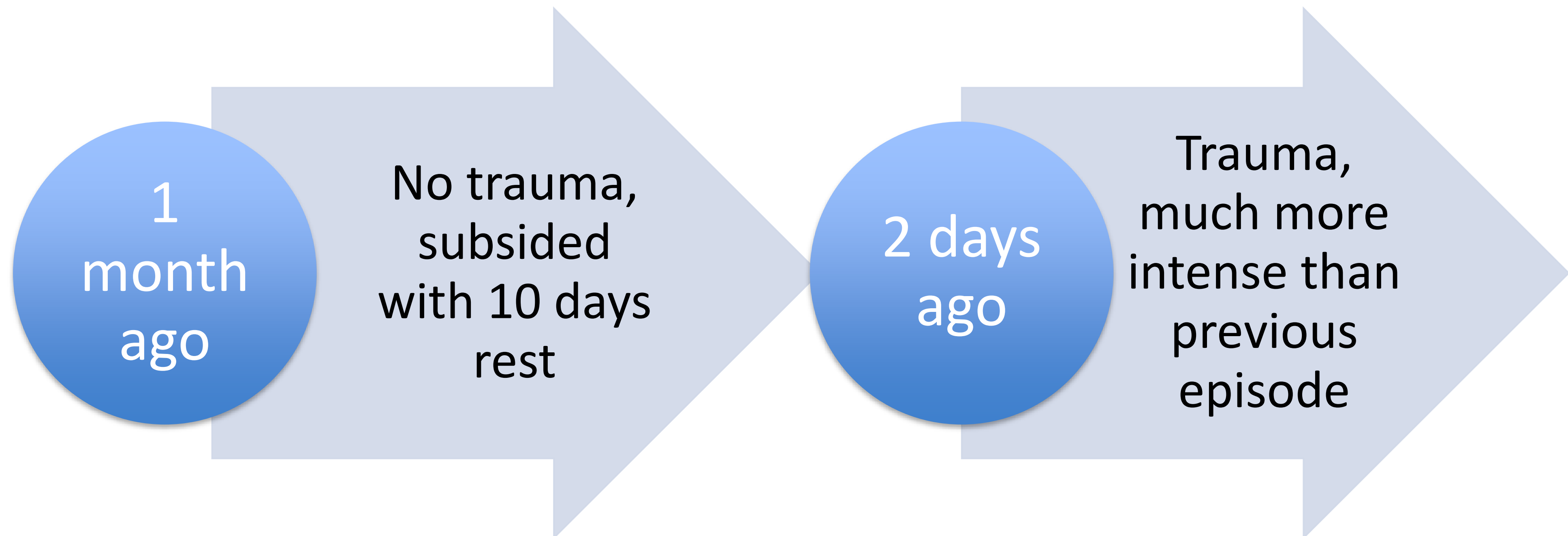
- Demonstrate requirements in all three aspects of recovery
- Know the sport
  - Energy demands
  - Open vs. Closed
  - Positions, postures, movements
- Load it, load it, load it.

Case 2: The Hockey Hip

By: Nicolas Turcotte, PT, Cert MDT, (CAN)

Clinical presentation

- 17 y/o competitive Hockey Goaler
- 15-20 hours of training a week



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LOWER EXTREMITIES ASSESSMENT

Date March 5th 2016

Name ______ Sex M / F

Address ______

Telephone ______

Date of Birth ______ Age 17

Referral: *GP / Orth / Self / Other* hockey team

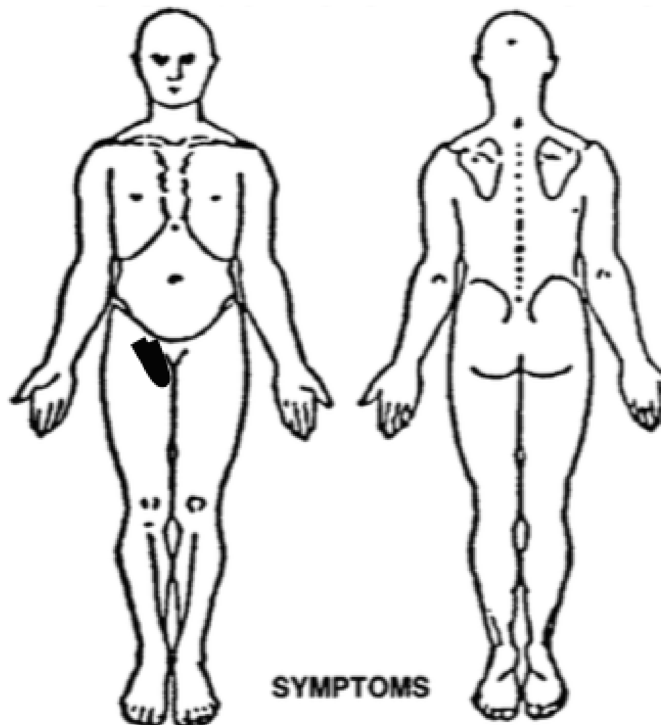
Work: Mechanical stresses Competitive Hockey Goaler

Leisure: Mechanical stresses ______

Functional disability from present episode Unable to practice or play

Functional disability score ______

VAS Score (0-10) ______



HISTORY

Present symptoms Groin Pain

Present since 2 days Unchanging *Improving / Unchanging / Worsening* (Unchanging circled)

Commenced as a result of During a game was in butterfly stance was hit by another player *Or No Apparent Reason*

Symptoms at onset Immediate Groin pain Paraesthesia: *Yes / No* (No circled)

Spinal history None *Cough / Sneeze +ve / -ve* (-ve circled)

Constant symptoms: ______ Intermittent Symptoms: R adductor region

Worse *bending* *sitting / rising / first few steps* *standing* *walking* *stairs* *squatting / kneeling*

am / as the day progresses / pm *when still / on the move* Sleeping: *prone / sup / side R / L*

Other Goaler Posture, using leg to push

Better *bending* *sitting* *standing* *walking* *stairs* *squatting / kneeling*

am / as the day progresses / pm *when still / on the move* Sleeping: *prone / sup / side R / L*

other Rest

Continued use makes the pain: *Better* *Worse* *No Effect* Disturbed night *Yes / No*

Pain at rest *Yes / No* Site: *Back / Hip / Knee / Ankle / Foot*

Other Questions: *Swelling* *Clicking / Locking* *Giving Way / Falling*

Previous episodes One month ago symptoms subsided gradually without treatment within a week

Previous treatments None

General health: *Good / Fair / Poor*

Medications: *Nil / NSAIDS / Analg / Steroids / Anticoag / Other* Advil had no effect

Imaging: *Yes / No* No

Recent or major surgery: *Yes / No* No Night pain: *Yes / No*

Accidents: *Yes / No* No Unexplained weight loss: *Yes / No*

Summary *Acute / Sub-acute / Chronic* *Trauma / Insidious Onset*

Sites for physical examination *Back / Hip / Knee / Ankle / Foot* *Other:*

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EXAMINATION

POSTURE

Sitting *Good / (Fair) / Poor* Correction of Posture: *Better / Worse / No Effect / (NA)* Standing: *(Good) / Fair / Poor*

Other observations:

NEUROLOGICAL: **(NA) / Motor / Sensory / Reflexes / Dural**

BASELINES (pain or functional activity):

EXTREMITIES ***(Hip) / Knee / Ankle / Foot***

MOVEMENT LOSS	Maj	Mod	Min	Nil	Pain
Flexion			✓		
Extension				✓	
Dorsi Flexion					
Plantar Flexion					

add and abd tested in neutral	Maj	Mod	Min	Nil	Pain
Adduction / Inversion			✓		✓
Abduction / Eversion			✓		✓
Internal Rotation			✓		
External Rotation			✓		

Passive Movement (+/- over pressure) (note symptoms and range):	PDM	ERP
Major loss off movement and end range pain in add at 90 degres flexion		
Abd and Add ERP		

Resisted Test Response (pain) ADD 4/5 Pain++ ASLR 4+/5 Pain

Other Tests Palpation proximal adductors painfull

No visible swelling or discoloration

SPINE

Movement Loss None

Effect of repeated movements No Effect

Effect of static positioning

Spine testing *(Not relevant) / Relevant / Secondary problem*

Baseline Symptoms

Repeated Tests	**Symptom Response**		**Mechanical Response**	
Active/Passive movement, resisted test, functional test	**During –** Produce, Abolish, Increase, Decrease, NE	**After –** Better, Worse, NB, NW, NE	**Effect –** ↑ or ↓ ROM, strength or key functional test	No Effect
Passive Flx x 20	Produces	NW		NE
Passive ABD x 20	Produces	NW		NE
IR and ER passive x 20	NE	NE		NE
Passive Add at 90 degres flx X 50	**Decrease**	**Better**	5/5 Stength resisted add decrease pain 50%	
Effect of static positioning			Increase ROM ++ ADD at 90 Flexion	
			Increase ROM ABD, IR ER	

PROVISIONAL CLASSIFICATION **Extremities** **Spine**

Dysfunction – Articular Contractile

(Derangement) **Responds To ADD at 90 degres Flx** Postural

Other

PRINCIPLE OF MANAGEMENT

Education Equipment Provided

Exercise and Dosage **Every hour 10 reps passive add at 90 degres**

Treatment Goals **Return to sports without symptoms**

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Looks like tendinopathy

Feels like a tendinopathy

Smells like a tendinopathy!!

YEP

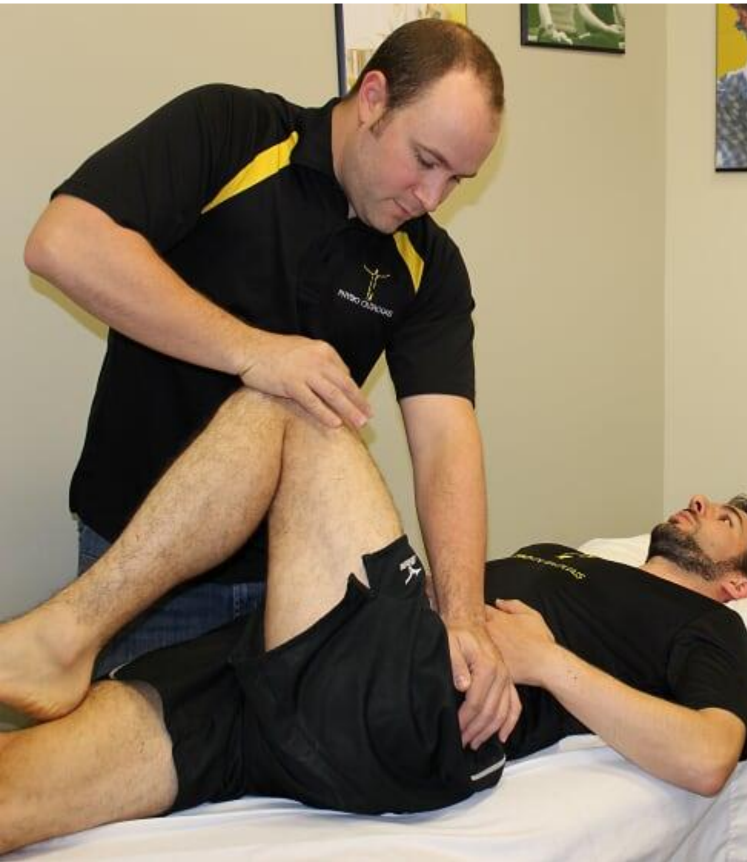
Deranged Hockey Hip

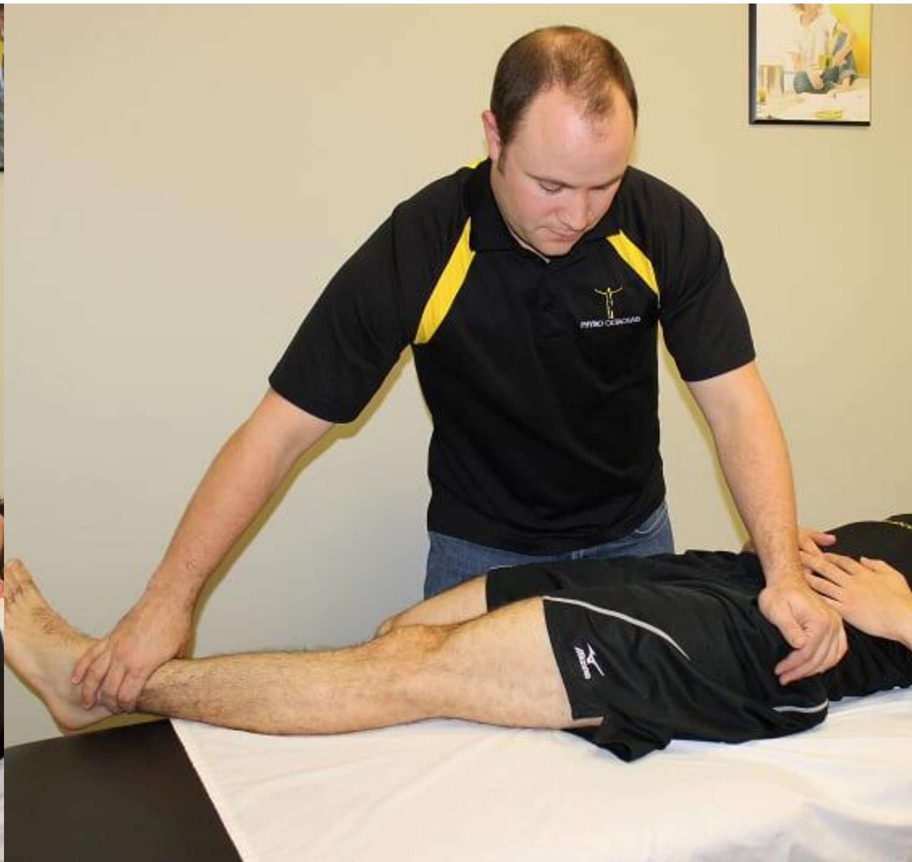
Look at Hip ADDn at different angles to find the obstruction and address with repeated movements

That's lava

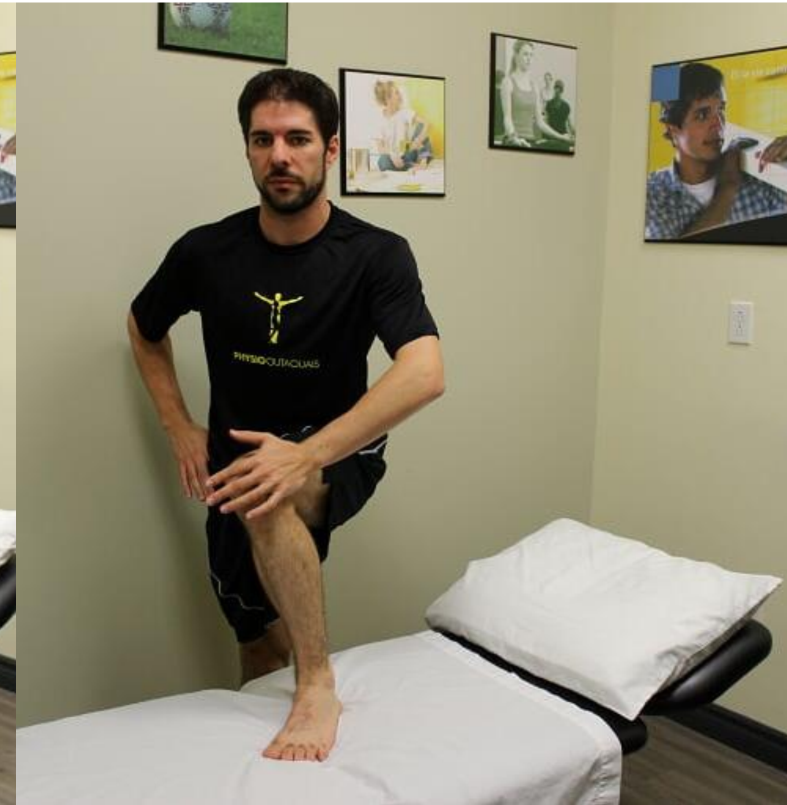
Hip ADDn

Look at different angles to find the obstruction





Reductive Exercices



Management of the hockey player

- Most will respond to ADDn at 90 FLX
- Why?
- Biomechanics of the skating motion ABD with EXT

Management of the athlete within a team

- Do not pull them out, keep them implicated with the team
- Discussion with coaches and local staff on what can and can't be done
- Goals of PT:
  - Return to sport as soon as possible
  - Maintain conditioning
  - Maintaining Game Shape with transition exercises

Management and follow up with the athlete in the case study

Progression

Day 1 on ice took shots standing for 15 minutes finished the practice on stationary bike

Day 2 Forward skating with direction changes, increased intensity on bike

Day 3 PT prior to practice had to progress with therapist O/P. Tested him functionally on sliding board. Practiced post to post and butterfly on ice, took shots

Day 4 Full practice without contact

Day 5 PT Cleared him for contact and full return. Had to O/P to regain full ROM in add.

Case 3: The Volleyball Shoulder

By: Mathieu Séguin, PT, Cert MDT, cert Sport PT (CAN)

Clinical presentation

- 23 y/o pro VB player (20-30h/wk)
- Long Hx of recurring of R shldr pain
- Treated as LHB tendinopathy (US, massage, etc)
- Present episode 6 wks
- Treatment was pain mgmt only for him to play

We leave in 10 days!

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UPPER EXTREMITIES ASSESSMENT

Date Apr 22nd 2014

Name Sex Male

Address

Telephone

Date of Birth Age

Referral: *GP / Orth / Self / Other* (Self circled)

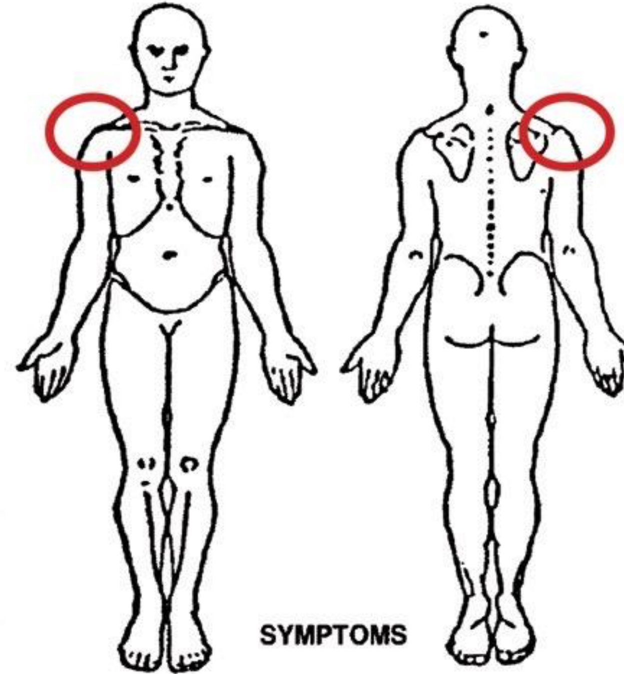
Work: Mechanical stresses Pro VB player 12mo/year

Leisure: Mechanical stresses Cooking, reading, movies

Functional Disability from present episode Decrease efficacity spiking and serving

Functional Disability score

VAS Score (0-10) 4-6/10



HISTORY

Handedness: Right / Left (Right circled)

Present Symptoms R shldr - sharp/catch ant and dull ache posterior

Present since 6 wks *Improving / Unchanging / Worsening* (Unchanging circled)

Commenced as a result of Increase in volume (playoffs) *Or No Apparent Reason*

Symptoms at onset sharp and shldr p 8/10 Paraesthesia: Yes / No (No circled)

Spinal history none Cough /Sneeze +ve / -ve (-ve circled)

Constant symptoms: dull ache (consistent) Intermittent Symptoms: ant shldr

Worse	*bending*	*sitting*	*turning neck*	*dressing*	*reaching*	*gripping*
	am / as the day progresses / pm		*when still / on the move*		Sleeping: *prone / sup / side R / L*	
	Other Swing, above head activities					
Better	*bending*	*sitting*	*turning neck*	*dressing*	*reaching*	*gripping*
	am / as the day progresses / pm		*when still / on the move*		Sleeping: *prone / sup / side R / L*	
	other massage, AINS, sleeper stretch					

Continued use makes the pain: *Better* *Worse* *No Effect* Disturbed night *Yes / No*

Pain at rest *Yes / No* Site: *Neck / Shoulder / Elbow / Wrist / Hand*

Other Questions: *Swelling* *Catching / Clicking / Locking* *Subluxing*

Previous episodes Suprascapular neuropathy, biceps tendonitis

Previous treatments Physio, massage, US, IFC, K-tape, acupuncture, SWT

General health *Good / Fair / Poor*

Medications: *Nil / NSAIDS / Analg / Steroids / Anticoag / Other*

Imaging: *Yes / No* Xray N, MRI fatty deposits in Infra-spin, min swelling in LHB

Recent or major surgery: *Yes / No* Night pain: *Yes / No*

Accidents: *Yes / No* Unexplained weight loss: *Yes / No*

Summary *Acute / Sub-acute / Chronic* *Trauma / Insidious Onset*

Sites for physical examination *Neck / Shoulder / Elbow / Wrist / Hand* *Other:*

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POSTURE

Sitting *Good / Fair / Poor* Correction of Posture: *Better / Worse / No Effect / NA* Standing: *Good / Fair / Poor*

Other observations: Complete atrophy of R intra-spin, R wing sacp, hypertonus R Trap

NEUROLOGICAL: NA / Motor / Sensory / Reflexes / Dural Normal

BASELINES (pain or functional activity): Full forward flexio and reach (spike)

EXTREMITIES ***Shoulder / Elbow / Wrist / Hand***

MOVEMENT LOSS	Maj	Mod	Min	Nil	Pain
Flexion			X		ANT
Extension				X	
Supination					
Pronation					

	Maj	Mod	Min	Nil	Pain
Adduction/ Ulnar Deviation			X		ANT
Abduction / Radial Deviation			X		PDM
Internal Rotation		X		9 cm	HBB
External Rotation				X	

Passive Movement (+/- over pressure) (note symptoms and range):	**PDM**	**ERP**
Decrease IR (@90 deg flex and abd) 50%		X
Min decrease Ftx, ADD, ABD		X

Resisted Test Response (pain) ER 2/5, ABD + FLX 4/5 pain

Other Tests Hawkins +, Speed +, Scarf -, lift off difficult, empty can mild pain

SPINE

Movement Loss Min R rotation

Effect of repeated movements NE

Effect of static positioning NE

Spine testing *Not relevant* (circled) *Relevant / Secondary problem*

Baseline Symptoms HBB 8 cm, Res Abd and Flex P, Hawkins

Repeated Tests	Symptom Response		Mechanical Response	
Active/Passive movement, resisted test, functional test	**During –** Produce, Abolish, Increase, Decrease, NE	**After –** Better, Worse, NB, NW, NE	**Effect –** ↑ or ↓ ROM, strength or key functional test	No Effect
Rep RI @ 90 ABD	P (general shldr)	NW	NE	X
Rep RI @ 90 Flex	P post shoulder	NW	HBB 6 cm	
			NE Res	
Rep HBB + Add	P ant shldr (strech)	B	HBB 6 cm	
Effect of static positioning			Abol Res	
			B Hawkins	

PROVISIONAL CLASSIFICATION **Extremities** (circled) **Spine**

Dysfunction – Articular

Contractile

Derangement IR/Add R shoulder

Postural

Other

PRINCIPLE OF MANAGEMENT

Education Condition

Equipment Provided

Exercise and Dosage Rep HBB + Add 10 reps every other hour

Treatment Goals Decrease pain, increase strength, return to full function

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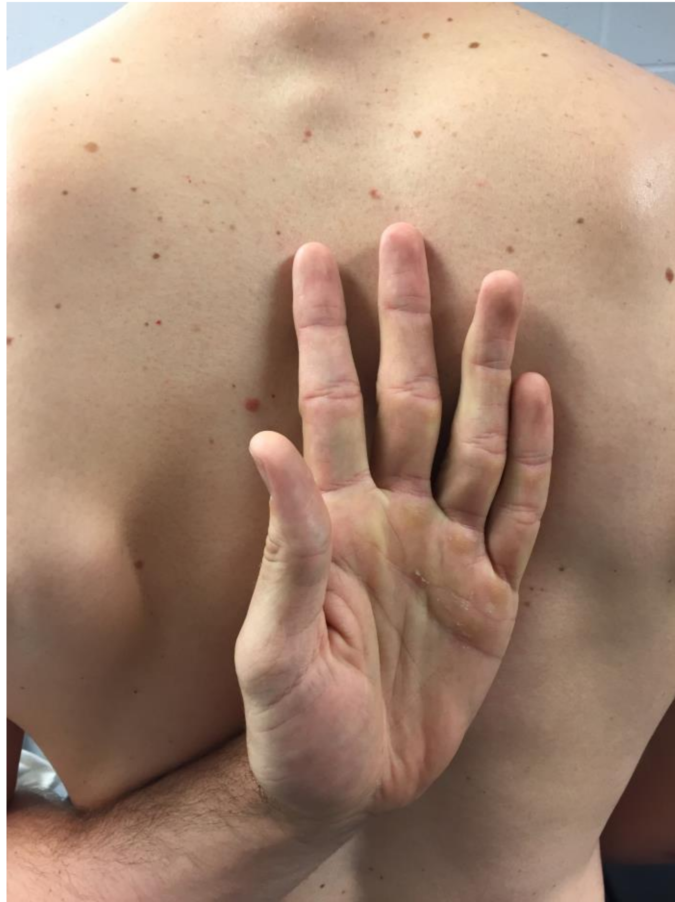
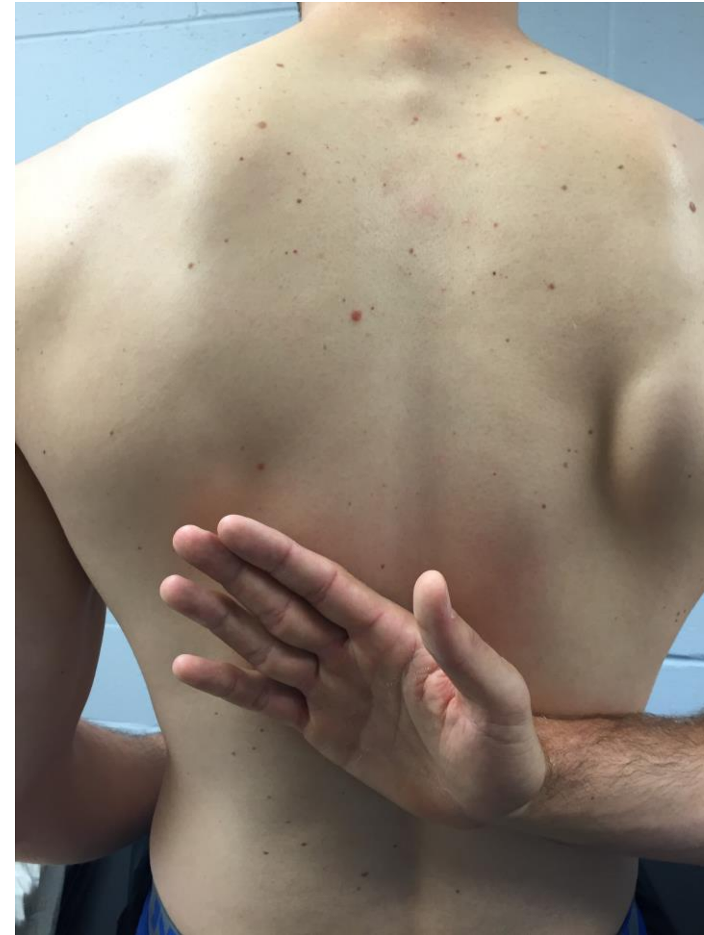
Technique





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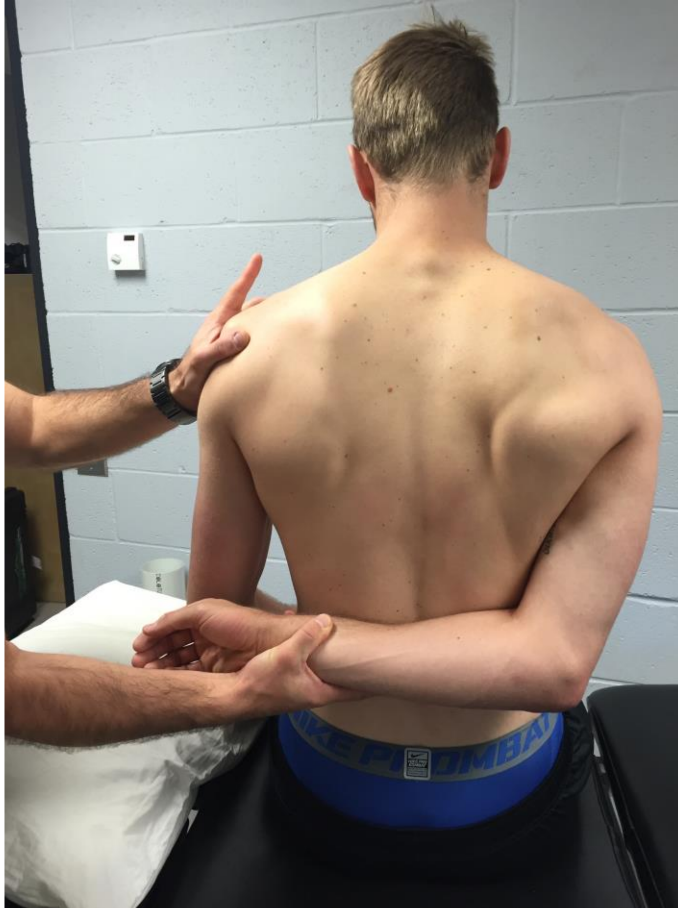
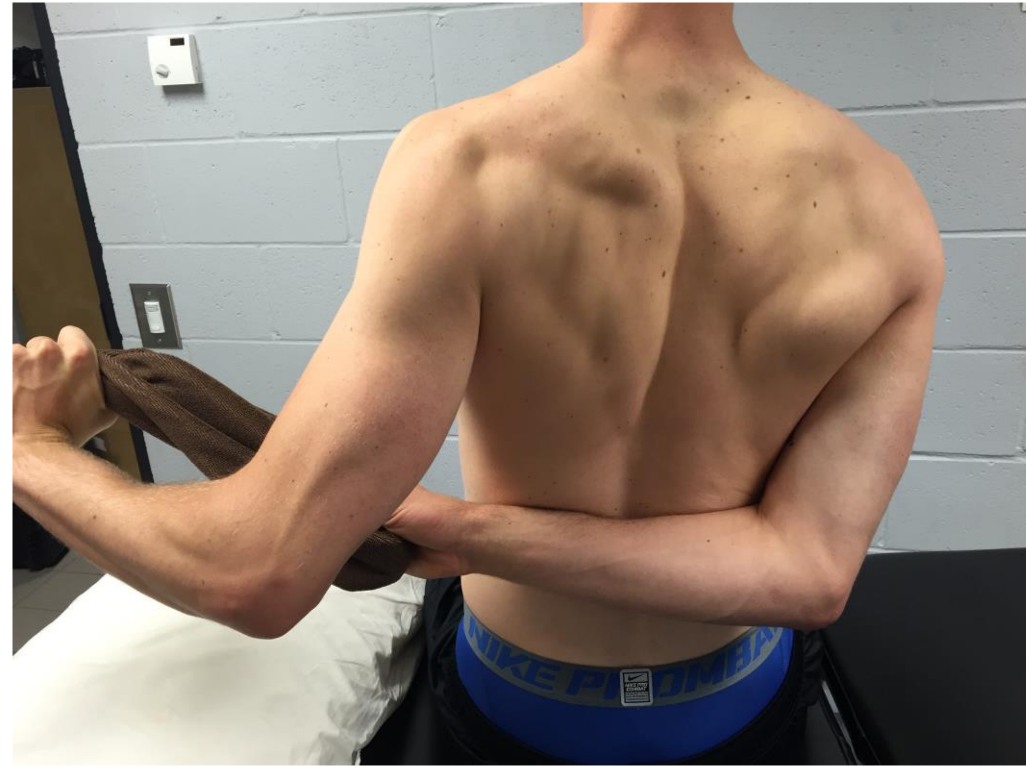
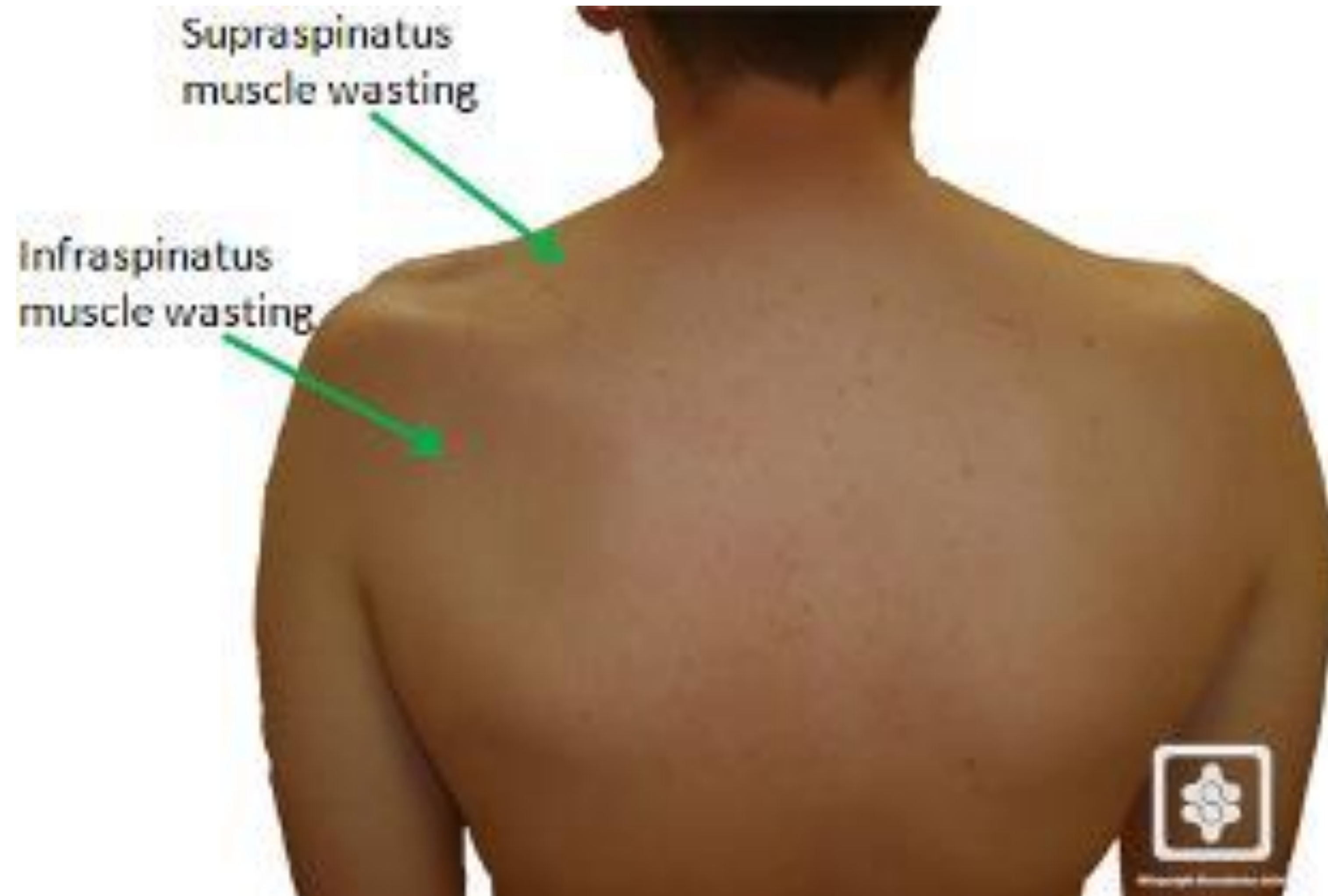




Neuropathy involvement



ROF vs Recurrence prevention

Take into consideration

Sport demands (non adjustable)

- High volume of same movement
- Loss of part of the shoulder stabilizers
- Important times

ROF vs Recurrence prevention

- Homeostasis
- Stability program vs prevention program
  - Scapular control
  - Compensation mechanisms
  - Healthy cervical spine

- Weight training modification

ROF vs recurrence prevention

- To know the sport and its biomechanical stresses facilitates treatment as patterns are seen within the same population
- Understand biomechanics
  - Assess (video/dartfish)
  - Coaches feedback
  - In this case spike vs serve
  - Other demands (periodization, weights, etc…)

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THANK YOU!

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PHYSICAL THERAPY SPECIALISTS

PHYSIO OUTAOUAIS
MÉDECINE DU SPORT