Long Head of Biceps

The Physiotherapy Perspective

Or Have the French got it right?!

Something For Everyone ☺

- **Does LHB have a role?**
- **Challenge of diagnosis**
- **What does the physio perspective add?**
- **How does this inform treatment?**

Long Head of Biceps: What Is It's Role?

Has evolution let us down?

- **Role controversial**
- **Abduction 7-10% power**

Cadaver studies:

- **Depressor of humeral head**
- **But EMG / radiology/ long-term results of tenotomy don't support**

Interactive Shoulder © 2000 Primal Pictures Ltd

Misunderstood: Helps Out!

Anterior instability

- **? Secondary stabiliser**
- **Compensation**

Massive RCT

- **Works harder in those with less Sx**

Rotator cuff tears

- **76 % cuff tears associated LHBT**

Ahrens 2007, Wu 2015, Wilk 2016

Its tough being the LHB

- **Extra-articular constraints**
- **Intra-articular restriction**
- **Not a lot of room!**
- **Dependent on other things doing their job properly**

Khazzam 2012, Boutsiadis 2015, Rosas 2017

Victim rather than culprit!

- **Don’t ignore it if it hurts!**
- **Something isn’t right!**
- **Only 5 % primary biceps tendinopathy**

Predictive ?

Surgery

- **Intra-articular**
- **Risk of stiffness**
- **Sensitivity – Cx spine**

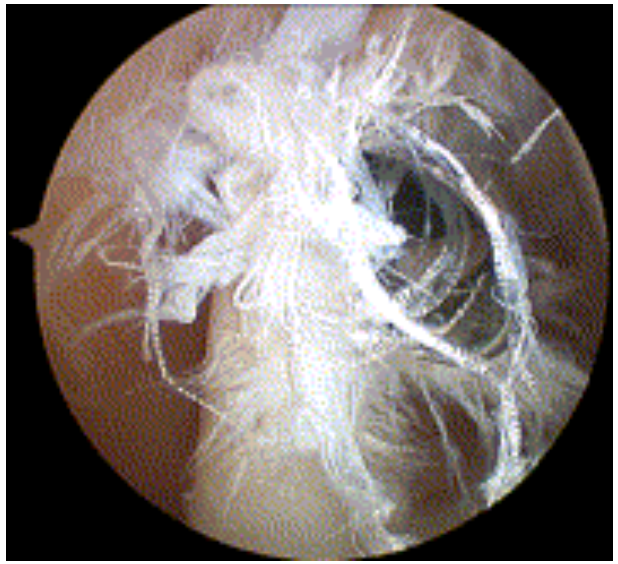
Taylor 2017, Cools 2015, Ahrens 2009, Gwilym 2010

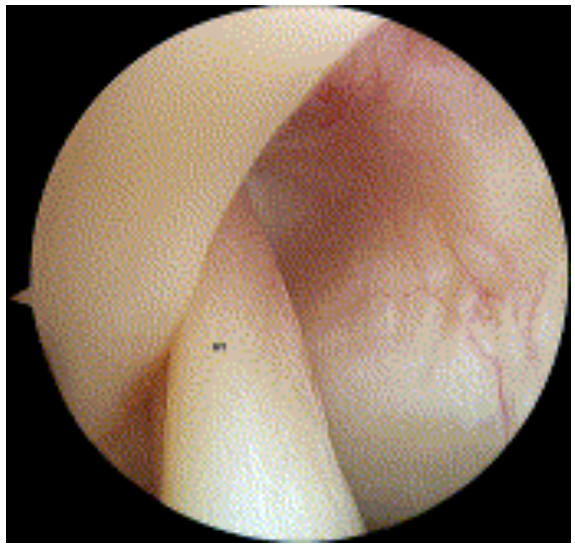
Long Head Biceps Pathology

- Degenerative
- Tendinopathy

  - Instability

  - Overload
- Anchor/pulley problems





Challenge of Diagnosis

Challenge of Diagnosis

Bicipital tunnel lesions

- Palpation
- O'Brien sign

= Highly sensitive

- Speed
- Yergason

= Poor sensitivity but high specificity

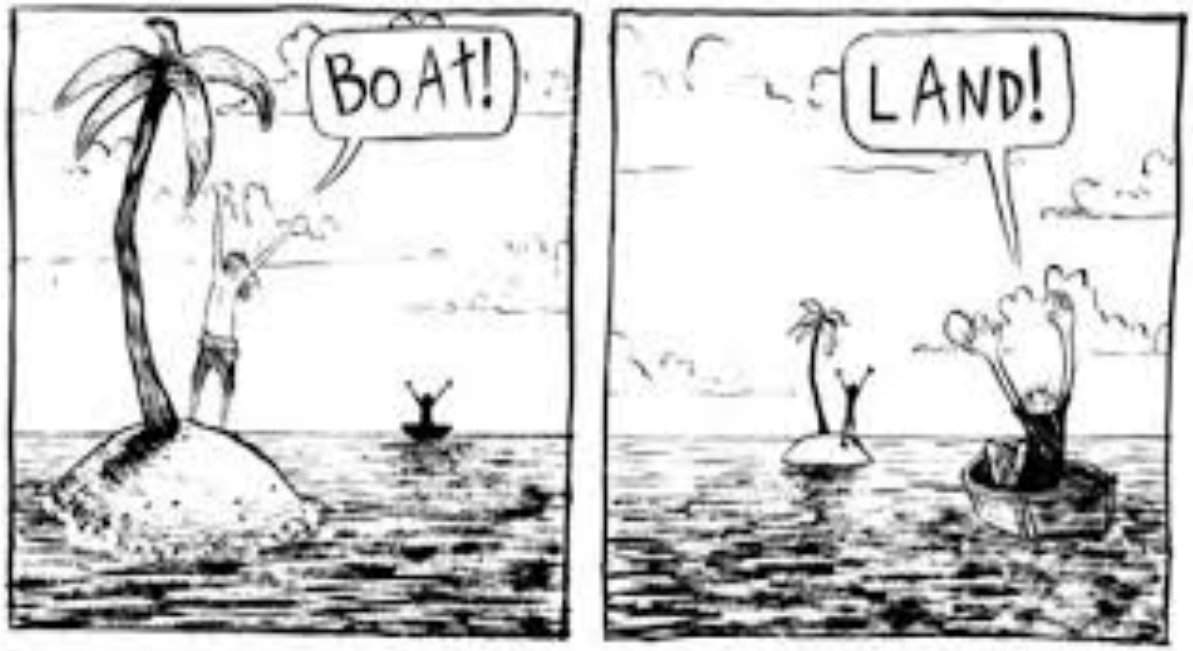
Taylor et al 2017, Urch 2017

Challenge of Diagnosis

- **Upper cut**
- **Local palpation**
- **Bear hug**
- **AB/ER**
- **Extension**
- **ER**

Rosas 2017, Michener 2015 , Kibler 2009

The Physiotherapy Perspective



The Physiotherapy Perspective

Compromised due to

- **Structure**
- **Stiffness**
- **Biology**
- **Stability**

The Physiotherapy Perspective

Structural

- **Partial tear**
- **Pulley lesion**
- **Unstable ?**

- **Subscap**
- **MRCT**
- **SLAP**

History Matters

Ahrens 2009, Wilk 2016

The Physiotherapy Perspective

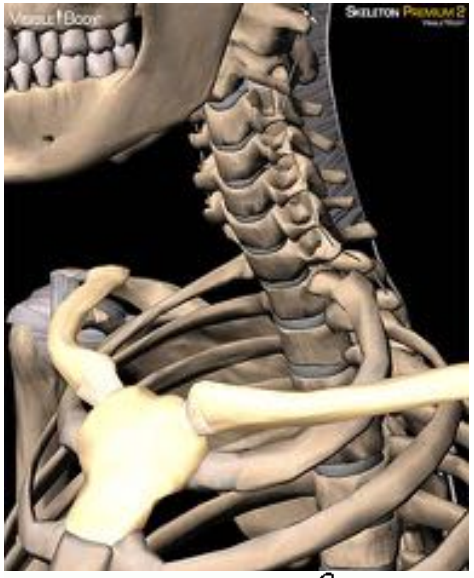
Stiffness

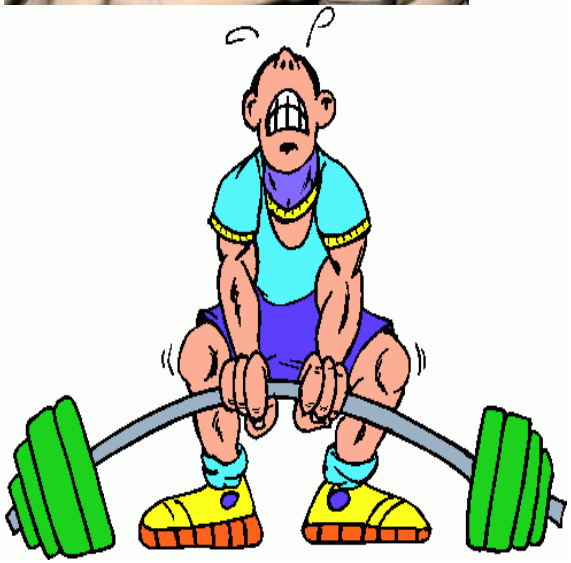
- **ACJ**

  - Abduction block /end range

- **Posterior-superior capsule**

  - Internal rotation





Wilk 2016, Kibler 2014

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Biology - Tendinopathy

- **Fluid content**
- **Pain sensitisation**
- **Collagen III**
- **Victim!**

Lewis 2017, McCreesh 2014, Runnells 2015

The Physiotherapy Perspective

Stability: What's the culprit?!

- **Load due to poor control ?**
- **Load due to poor force transfer ?**

The Physiotherapy Perspective

What's the culprit?!

- **Load due to poor control ?**
- **Load due to poor force transfer ?**

The Physiotherapy Perspective

Foundations: Stability

- **Cuff**

- ER inhibition/weakness

- **Scapula**

- Hyper-angulation

Wilk 2016, Kibler 2014, Khazzam 2017, Borms 2016, Hickey 2017

The Physiotherapy Perspective

Informing assessment

- **Improvement tests**
- **Cuff**
- **Scapula**

Dark 2007, Ginn 2015,Reimann 2010

The Physiotherapy Perspective

Informing assessment

- **Supported cuff**

Dark 2007, Ginn 2015,Reimann 2010

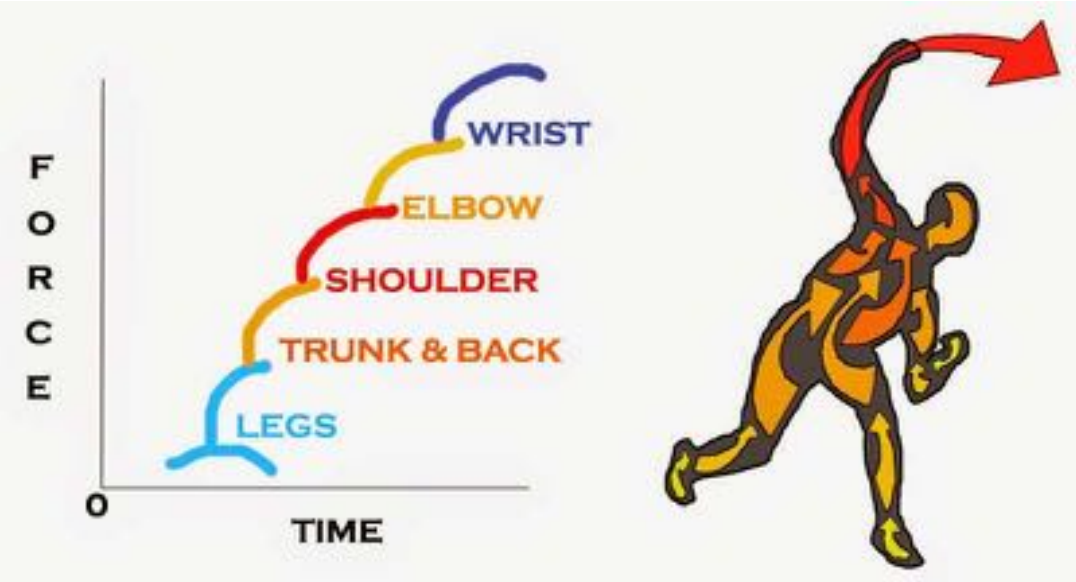
The Physiotherapy Perspective

What's the culprit?!

- **Load due to poor control ?**
- **Load due to poor force transfer ?**

The Physiotherapy Perspective

- **Load transfer**
- **The Kinetic Chain**



Wilk 2016, Borms 2016, Sciascia 2016

The Physiotherapy Perspective

- **Hip Abduction/ER**
- **Thoracic rotation**
- **Later timing trunk/pelvis rotation**
- **Shoulder hyper-angulation**

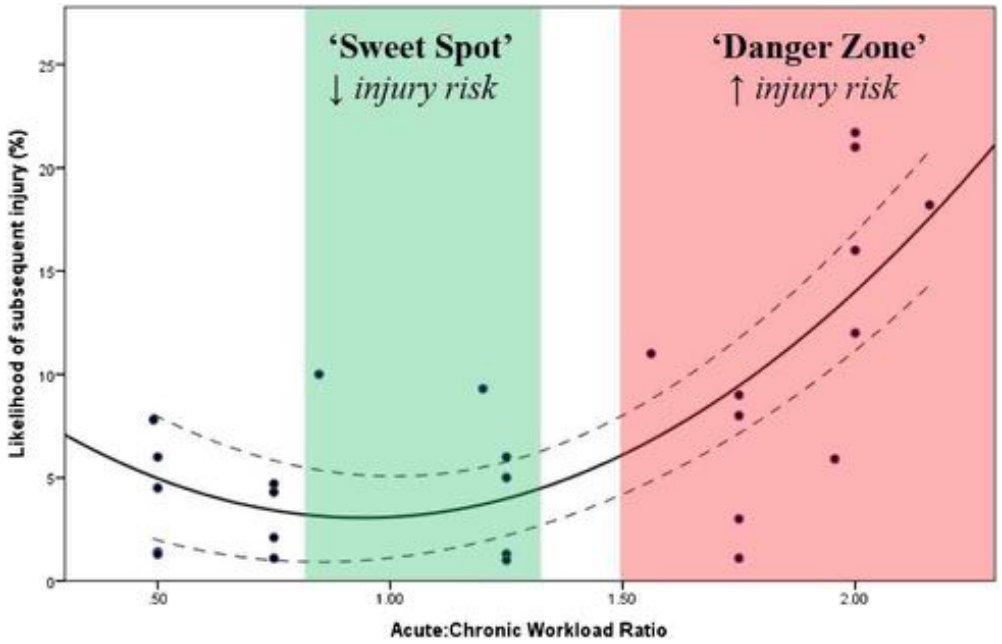
= Increased load shoulder

Martin et al 2014, 2016

The Physiotherapy Perspective

What does this mean to assessment?

- **Restriction versus stability?**
- **History matters**



Gabbett 2016.2017

The Physiotherapy Perspective

Assessment

- **Single leg balance**
- **Single leg squat**
- **Step/gluts activation**
- **Thorax rotation**

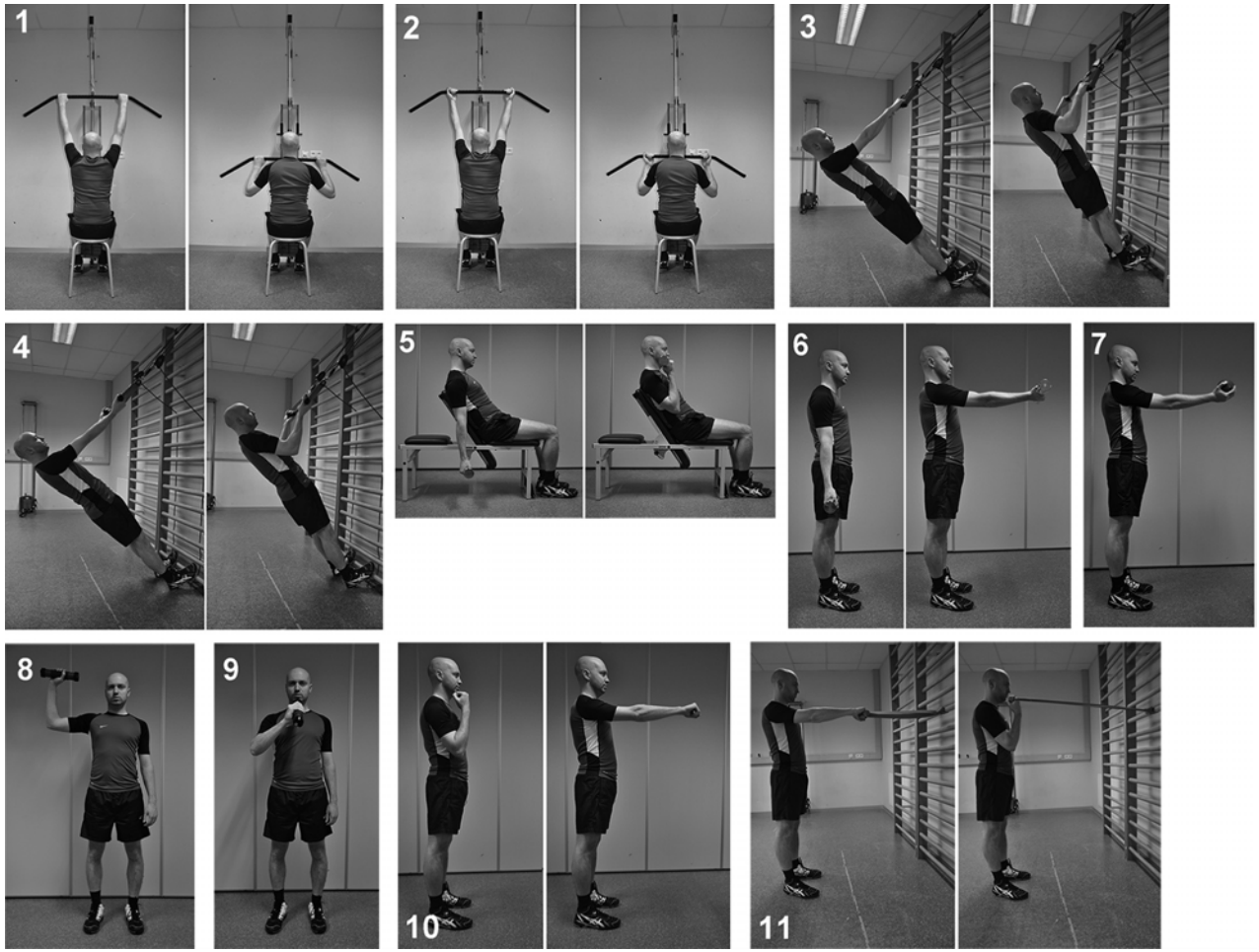
Olivier (2016), Kibler 2016, Sciascia 2017

The Physiotherapy Perspective

- **Gluteals**
- **Single-leg hop**
- **Power-vertical jump & long jump**
- **? Sports specificity**

Wilk 2016, Kibler 2016

How Does This Inform Rehabilitation?



It’s not all about loading biceps!!

How Does This Inform Rehabilitation?

‘Grumpy/Irritable LHB’

- **Tendinopathy**
- **Fluid**
- **Pain sensitivity**

- **Isometrics**
- **Support the arm**
- **Other arm**
- **Avoid fatigue**
- **Compression**

Rio 2016, Naugle 2016, Ginn 2015, McCreesh 2017, Runnells 2015

How Does This Inform Rehabilitation?

Degenerative:

Higher activation levels

- **Biceps**
- **Latissimus dorsi**
- **UT & Serratus Anterior**
- **Teres major**
- **Remnants of rotator cuff**

Ainsworth 2007, 2013, Levy 2008, Baydar 2006, Kelly 2005, Hawkes 2012

How Does This Inform Rehabilitation?

- **Wall squat**
  - **Cuff activation**
  - **Thorax/scapula**
  - **Unloads ?**

Kibler 2012

How Does This Inform Rehabilitation?

ER through range in scaption

- **Increases middle and lower trapezius**
- **Adding load increases activity**

Castelein 2016, Moeller 2014, Mizzari 2015

How Does This Inform Rehabilitation?

ER at 90 abduction

- **Deltoid**
- **Serratus**
- **Upper trapezius**
- **Rotator cuff**
- **? Subscap**

Alizadehkhaiyat 2015

Lessons I have Learnt

- **It takes time!!**
- **12 weeks**

De Winter 2007, Brievik 2006, Paloneva 2013, Parsons 2007

Lessons I have Learnt

- Is it torn ?
- Is it stiff ?
- Is it irritable?

If not

- Can you change it?
  - Cuff/scapula
  - Kinetic chain

Lessons I have Learnt

- **Listening is the key!**
- **Commonly the victim not the culprit**
- **See the bigger picture**

Happy English!

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