

Dr Paul Annett

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Sport Neurology

Why is this important??

- Initial presentation to physiotherapists
- Often unusual/atypical presentation
 - Some are textbook, others aren't
- 'I haven't seen it, but it's seen me'
- Thorough assessment essential!



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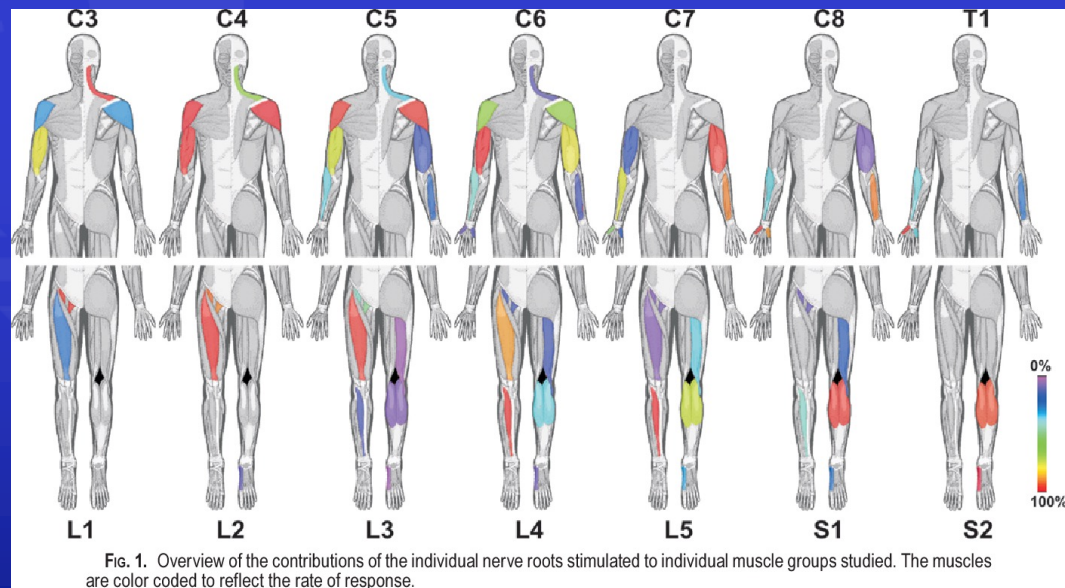
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Nerve Function

- What do nerves do?

- Power
 - Weakness
 - Myotomal
 - Muscle supply



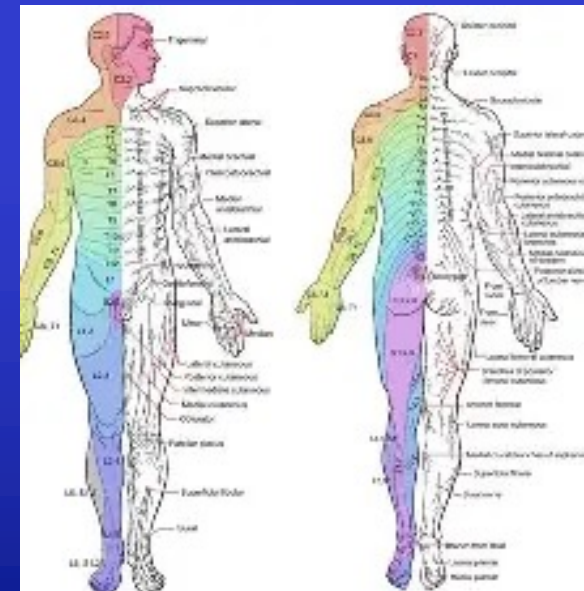
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Nerve Function

- Sensation
 - Numbness, pain, paraesthesia, dysaesthesia
 - Dermatomal distribution
 - Peripheral nerves



Nerve Function

- Reflexes
- Hypo v Hyperreflexia

Deep Tendon Reflexes

DEEP TENDON REFLEXES		Right	
C5, C6	Biceps	2+	
C5, C6	Brachioradialis	2+	
C7, C8	Triceps	2+	
L3, L4	Quadriceps (knee jerk)	NT	
SI, S2	Triceps Surae	NT	
	Babinski	(-)	
	Clonus	NT	



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Nerve Function – Where's the Issue?

- Central
 - Spinal nerve roots/cord
 - Consider Cerebral/UMN
 - MS/MND/Etc
 - Clonus/Hyperreflexia
- Peripheral
 - Entrapment
 - Medical causes
 - Inflammatory
 - Diabetes
 - Vitamins



Differential Diagnosis

- What is causing the problem?
 - Soft tissue
 - Bone
 - Joint
 - Tendon
 - **Nerves**
 - Vascular - Artery/Vein



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Case #1

- 18F
- 12/12 R hamstring pain
- Active/netball. No injury
- Aggravated sport and sitting.
- Not relieved with physio
- GP US hamstring normal



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – Hamstring
 - Nerves – Sciatic/Lumbosacral plexus
 - Tendon. Proximal hamstring
 - Bone – Stress fracture
 - Joint - SIJ
 - Vascular - Artery/Vein – Arterial stenosis



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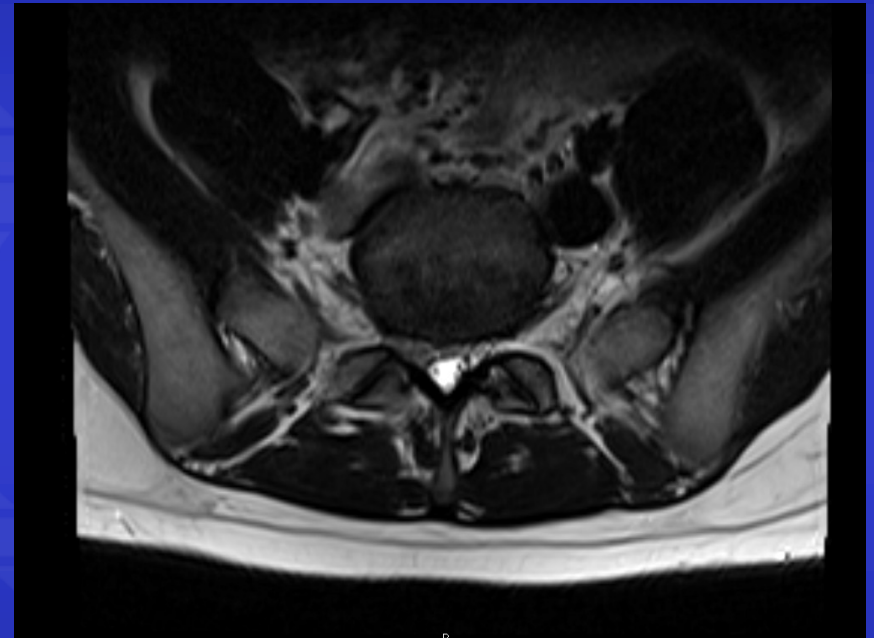
Examination Findings

- Lumbar provocation
 - Flexion/Lumbar quadrant
- Weakness
 - Know your nerve roots
- Reflexes
- Sensory
 - See weakness
- Neural tension – Slump/SLR/ ‘Cross-Over’



Outcome

- MRI – R L5/S1 disc
- S1 root compression
- Nerve root injection
- Surgical decompression



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Case #2

- 35F
- 3/12 of L trapezius/parascapular pain + occasional lateral elbow pain
- No precipitant
- Not settled with physio/anti-inflammatories
- GP US elbow – CET. CSI unhelpful



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – cervical extensors
 - Nerves – Cervical roots/brachial plexus
 - Bone - Vertebral
 - Joint - Facet
 - Tendon – Tennis elbow
 - Vessels. Artery/Vein



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Examination Findings

- Cervical provocation
 - Flexion/Spurling's
- Weakness
 - Know your nerve roots
 - Don't forget the hand
- Reflexes
- Sensory
 - See weakness



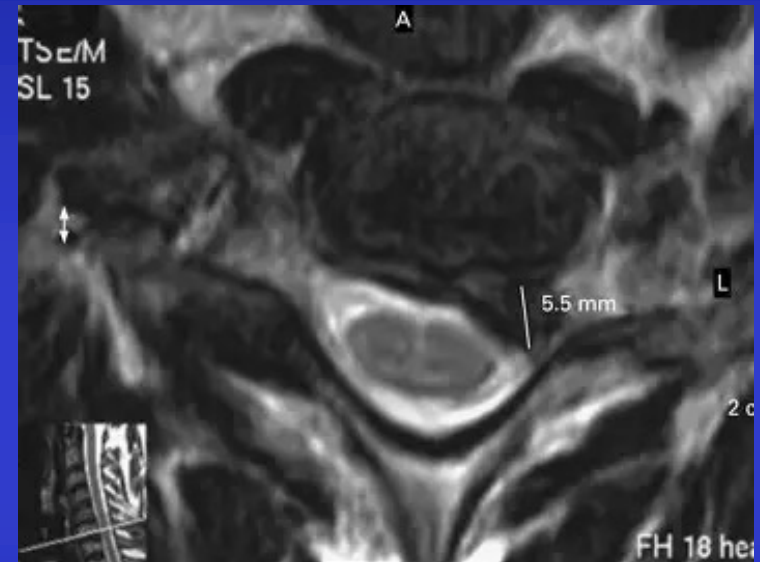
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Outcome

- L C7 disc prolapse
- Some improvement with Physio + NSAIDS
 - Cervical traction
- C7 root CSI
- No surgery required



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Take Home Message

- When its easy, its easy!
- With non-specific/atypical pain presentations always perform a neurologic examination
- Consider all potential structural issues when assessing your patient



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Case #3

- 42F
- 4/12 woke with a 'wry neck'
- 1/52 later severe R neck/arm pain
- Lasted 2/52, then settled
- Presents with restricted movement/fatigue R shoulder/arm. Essentially pain free
- GP has advised 'frozen shoulder'



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – Cervical/parascapular
 - Nerves – Cervical spine/ Brachial plexus
 - Joint – Glenohumeral joint/capsulitis
 - Tendon – Rotator cuff. Bursa/calcific
 - Bone – Humerus/Scapula
 - Vascular - Artery/Vein



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Examination

- Reduced active, not passive shoulder ROM
- Normal cervical exam/ROM
- Significant weakness C5
 - Supra/infraspinatus
 - Biceps preserved
- Reflexes normal/Sensation maintained



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Diagnosis



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Acute Brachial Neuritis

- Parsonage Turner Syndrome (Neuralgic amyotrophy)
- Rare : 1-2/100,000
- Aetiology – inflammatory
- Typical presentation
 - Acute pain
 - Neurological loss



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Acute Brachial Neuritis

- Clinical
- Management
 - Investigation
 - MRI/NCS
 - Pain/analgesia
 - Physical



Outcome



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Case #4

- 45 F police officer
- 3/12 R anterior thigh pain, parasthesia and altered sensation
- No obvious precipitant



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – Iliopsoas/Quadriceps
 - Nerves –/Lumbar spine/plexus/LFCNT
 - Bone – Stress fracture femur
 - Joint - Hip
 - Tendon – Hip flexor
 - Vessels. Artery/Vein – Arterial stenosis



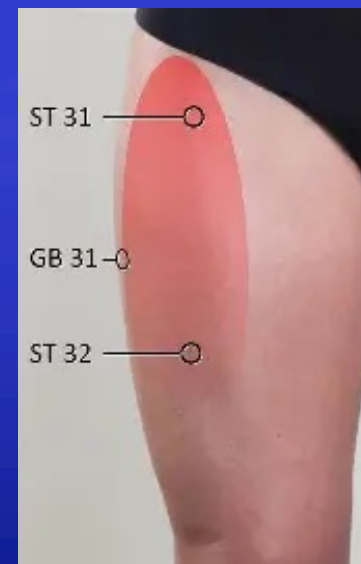
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Examination Findings

- Lumbar exam normal
- Reduced sensation anterolateral thigh
- Normal power/reflex
- Normal hip examination
- Normal vascular examination



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Diagnosis



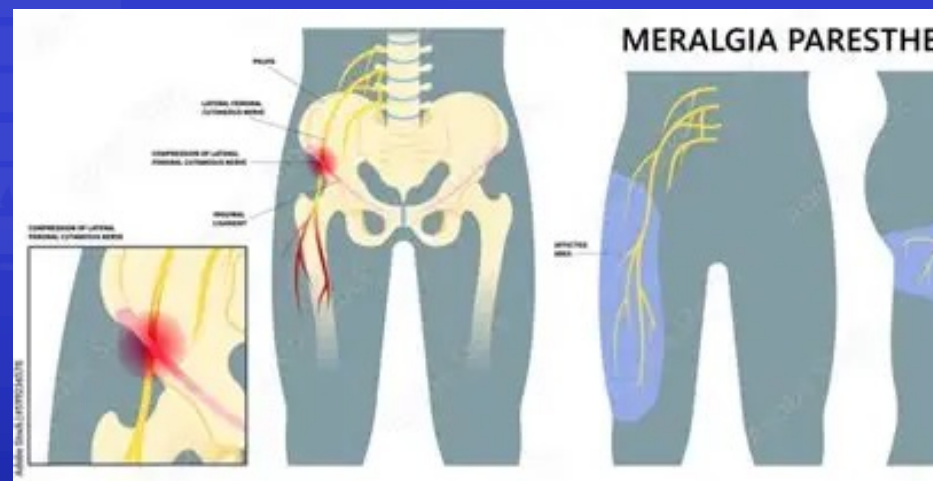
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‘Meralgia Parasthetica’

- Lateral femoral cutaneous nerve thigh
- Entrapment medial to ASIS
- Treatment
 - Unload
 - Physio
 - Medications
 - Injections
 - Surgery



Outcome



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Case #5



- 35 Y.O sonographer
- 6/12 poorly localized R lateral elbow and forearm pain
- Worsened with heavier scanning (Pregnancy/Abdominal) and repetitive tasks



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – Wrist extensors
 - Nerves – CSp/Plexus/radial nerve/PIN
 - Tendon - CET
 - Joint – RC OA
 - Bone – Radius
 - Vascular – Artery/vein



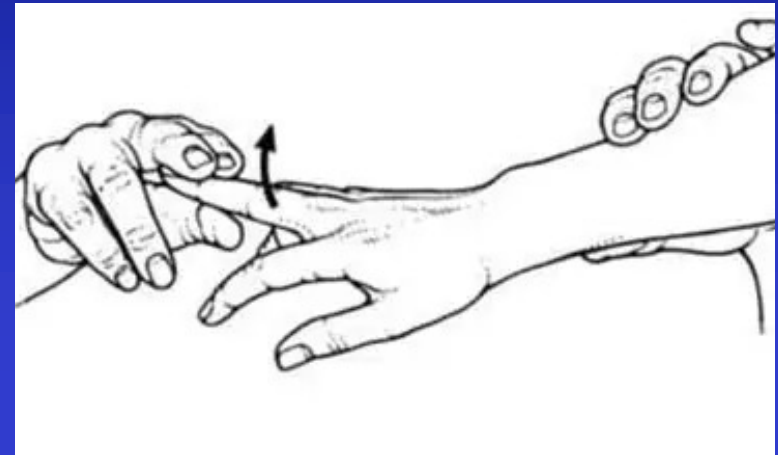
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Examination

- Normal elbow ROM
- No pain on CET testing
- Tender proximal forearm
- Pain on resisted supination
- No weakness/reflex loss



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Diagnosis



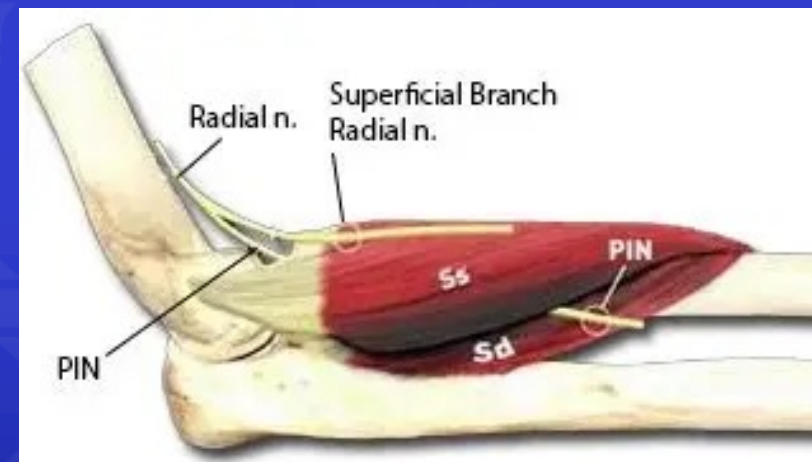
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‘PIN Syndrome’

- Posterior interosseous nerve entrapment
 - Arcade of Frohse
 - Supinator muscle
 - Nerve supply
- Treatment
 - Physio
 - Medications
 - Injections
 - Surgery



Outcome



Case #6

- 40Y.O weight-lifter
- 6/12 of evolving hand weakness + parasthesia 4/5 fingers
- Aggravated by training
- Symptoms worse at night



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – Wrist flexors
 - Nerves – CSp/Plexus/Ulna nerve
 - Tendon - CFT
 - Joint – UC OA
 - Bone – Humerus/Ulna
 - Vessels. Artery/Vein



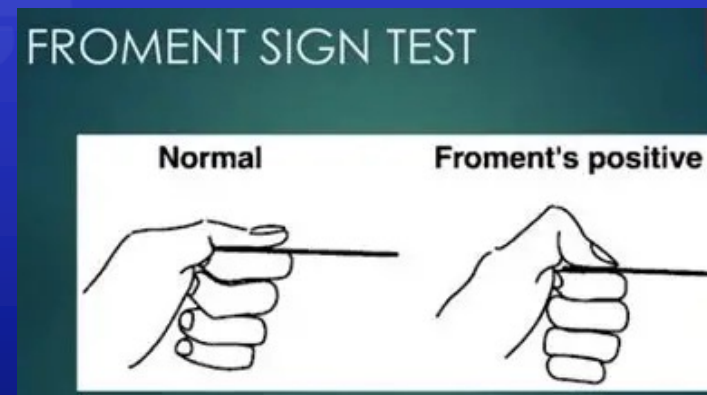
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Examination

- Normal elbow ROM
- No pain on CFT testing/Epicondylar tenderness
- Hand weakness
- Reduced sensation 4/5th fingers
- Positive Tinnel's test



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Ulna Neuropathy

- Ulna neuropathy
 - Subluxation
 - Compression
 - Neuritis
- Treatment
 - Physio
 - Medications
 - Injections
 - Surgery



Outcome



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Case #7

- 16 Y.O male Rugby League
- Making a front-on tackle in a game
- Sudden loss of power/parasthesia in hand
- Settled within 60 secs and played on
- Has had recurrent episodes which settle quickly despite rest between 1-4 weeks



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Differential Diagnosis

- What is causing the problem?
 - Soft tissue – Deltoid contusion
 - Nerves – C-spine/Brachial plexus
 - Tendon – Rotator cuff
 - Joint – Glenohumeral
 - Bone – Humerus/Scapula
 - Vessels. Artery/Vein



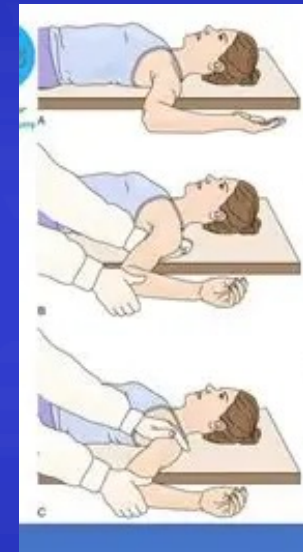
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Examination

- Shoulder ROM preserved
- Normal rotator cuff strength
- Normal C5/6 neurology
- Cervical exam normal
- Positive apprehension test



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Diagnosis



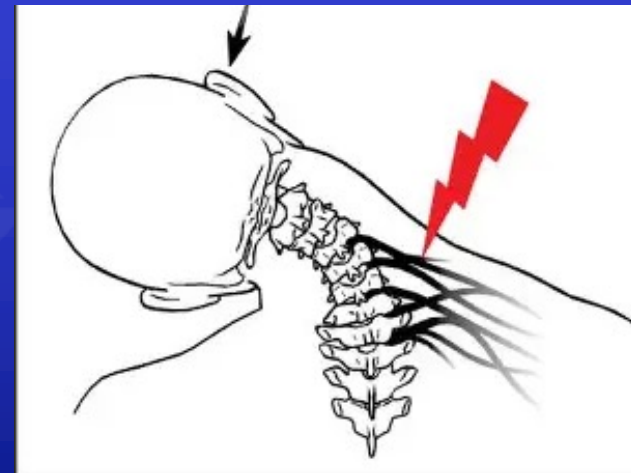
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Cervical Burner syndrome

- Typically a traction injury to the brachial plexus, but can be compressive
- Can last from short to prolonged timeframes
- Rest is essential
- Not to be missed
 - C-spine
 - Shoulder instability



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Outcome

- MRI – focal labral tear
- Undergoing rehabilitation
- May require a shoulder stabilization



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Take Home Message

- Neurologic syndromes may commonly present to physiotherapists
- A detailed knowledge of nerve distribution and function is essential for diagnosis
- Neurological syndromes should be considered in atypical or non-specific presentations
- Referral to a medical practitioner may required for further evaluation.

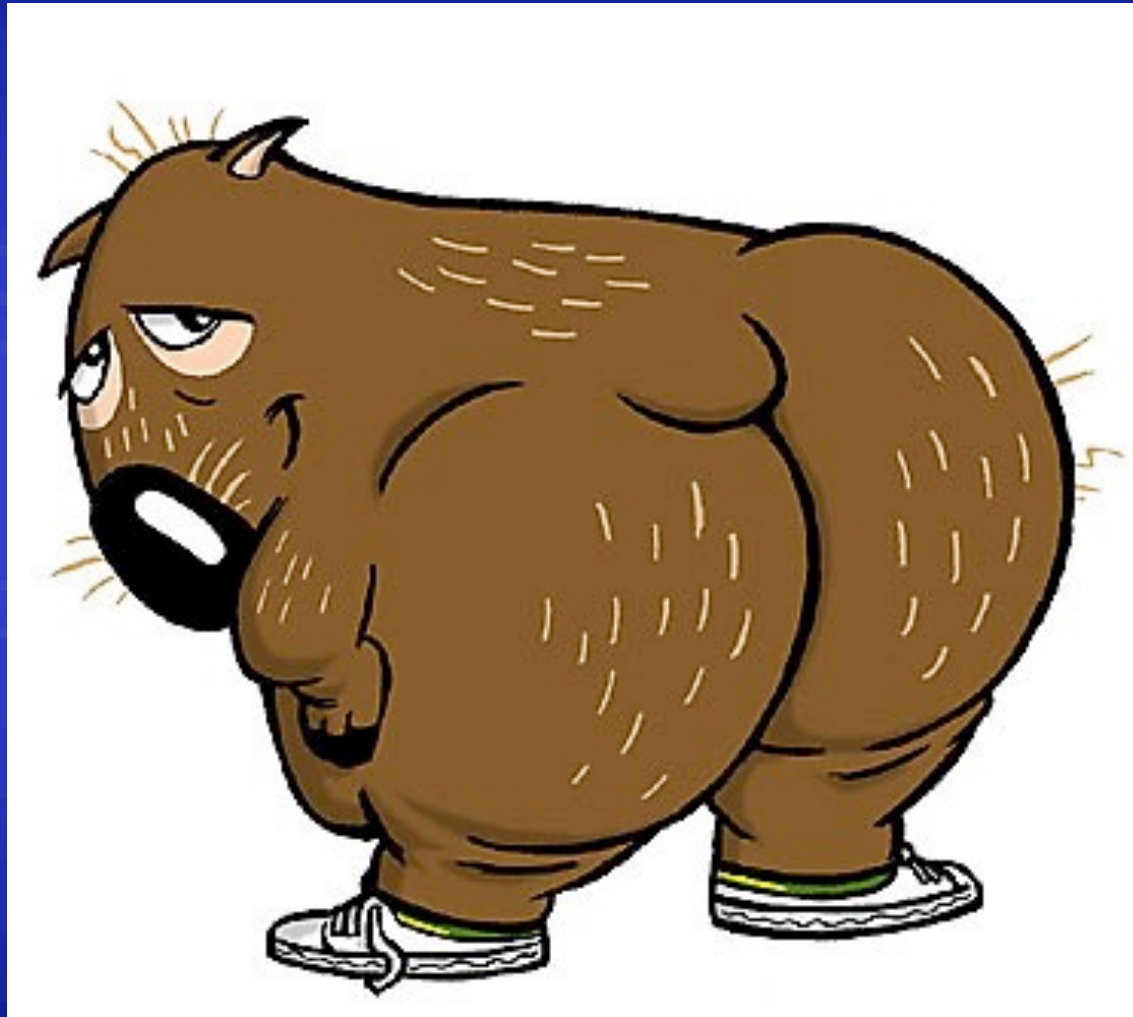


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Thank You



Celebrating 25 Years of Fatso



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