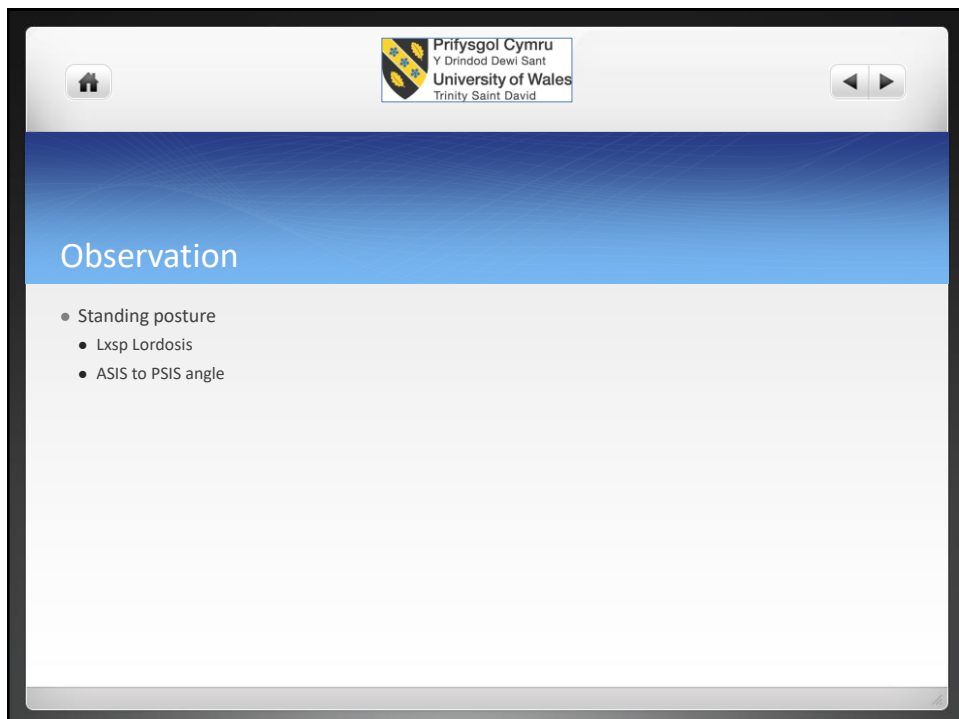
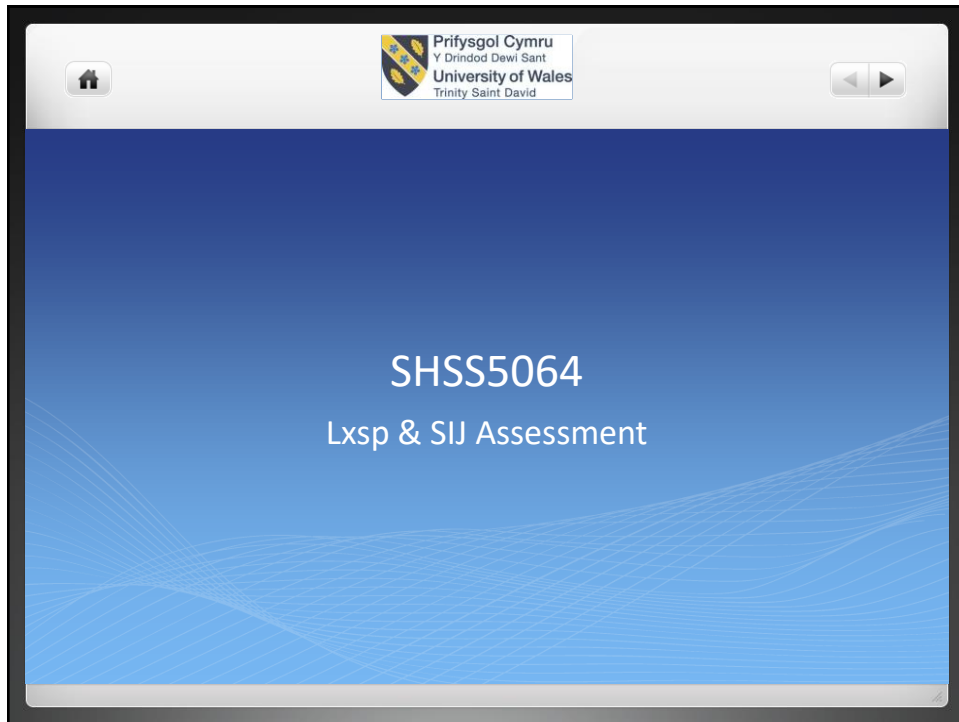






Quick Touch

- Temperature & Texture



Movements AROM

- Flxn
 - Note normal Lxsp 40°
 - Hip flxn 70°
- Extn (against plinth) 15°
- LSF/RSF 20°
- LRot/ RRot (against plinth) 5°





Movements PROM

- Flxn
 - Hand above SIJ
 - Apply downward pressure to Txsp
- Extn
 - Stabilise posterior/SIJ
 - Apply overpressure to chest
- SF (push)
 - Stabilise anterior pelvis
 - Apply overpressure to base of ribs
- Rot (pull)
 - Stabilise posterior hip
 - From anterior pull lower ribs towards you



Movements RROM

- Flxn
 - Hand above SIJ
 - Apply downward pressure to Txsp & Pt resists
- Extn
 - Stabilise posterior/SIJ
 - Apply overpressure to chest & Pt resists
- SF (push)
 - Stabilise anterior pelvis
 - Apply overpressure to base of ribs & Pt resists
- Rot (pull)
 - Stabilise posterior hip
 - From anterior pull lower ribs towards you & Pt resists







Locating bony landmarks

- Can use C6 differentiation test and work down ...
- Can use L5/S1 differentiation test (left hand on left side)
 - Find L4 from iliac crests
 - Find approximately L5 with 3rd finger
 - Find S1 with middle 2nd finger
 - Find S2 with index 1st finger
 - Leave your fingers in place and ask patient to perform a posterior tilt of pelvis
 - Feel for gap opening between L5 and S1 but no gap between S1 and S2
 - (movement of 3rd and 2nd finger, but no movement between 1st and 2nd finger)







Accessory Movement Assessment

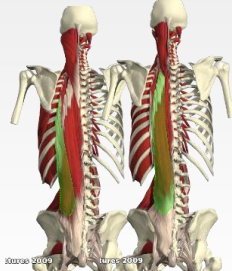
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Erector spinae group as Extensor Illiocostalis, Longissimus and Spinalis

- Origin
 - Ilium, Sacrum, Lumbar and thoracic transverse processes , Cervical and thoracic spinous processes
- Insertion
 - Posterior ribs and cervical and thoracic transverse processes, Cervical and thoracic spinous processes, Base of the skull
- Action
 - Extension of the spine
 - Lateral flexion of the spine

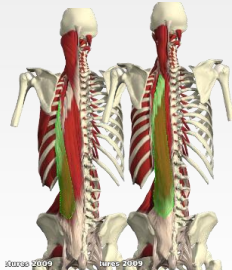






Erector spinae group as Lateral Flexor Illiocostalis, Longissimus and Spinalis

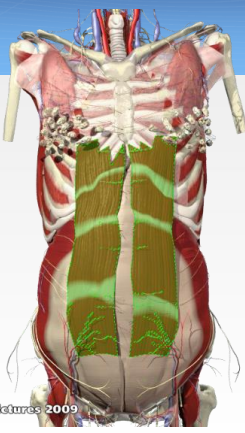
- Origin
 - Ilium, Sacrum, Lumbar and thoracic transverse processes , Cervical and thoracic spinous processes
- Insertion
 - Posterior ribs and cervical and thoracic transverse processes, Cervical and thoracic spinous processes, Base of the skull
- Action
 - Extension of the spine
 - Lateral flexion of the spine



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Rectus abdominis

- Origin
 - Crest of the pubis, pecten pubis and pubic symphysis
- Insertion
 - anterior surface of xiphoid process and 5th to 7th costal cartilages
- Action
 - Trunk flexion



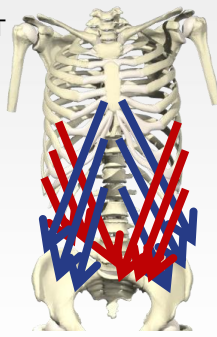
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Internal and External Oblique's

RIGHT LEFT

RED: External Oblique BLUE: Internal Oblique





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External abdominal oblique

- Origin
 - Outer surface of lower 8 ribs
- Insertion
 - Aponeurosis attached to pubic crest from pubic tubercle up along linea alba.
- Action
 - Both - Trunk flexion
 - Individual – Lateral flexion to same side and rotation to opposite side



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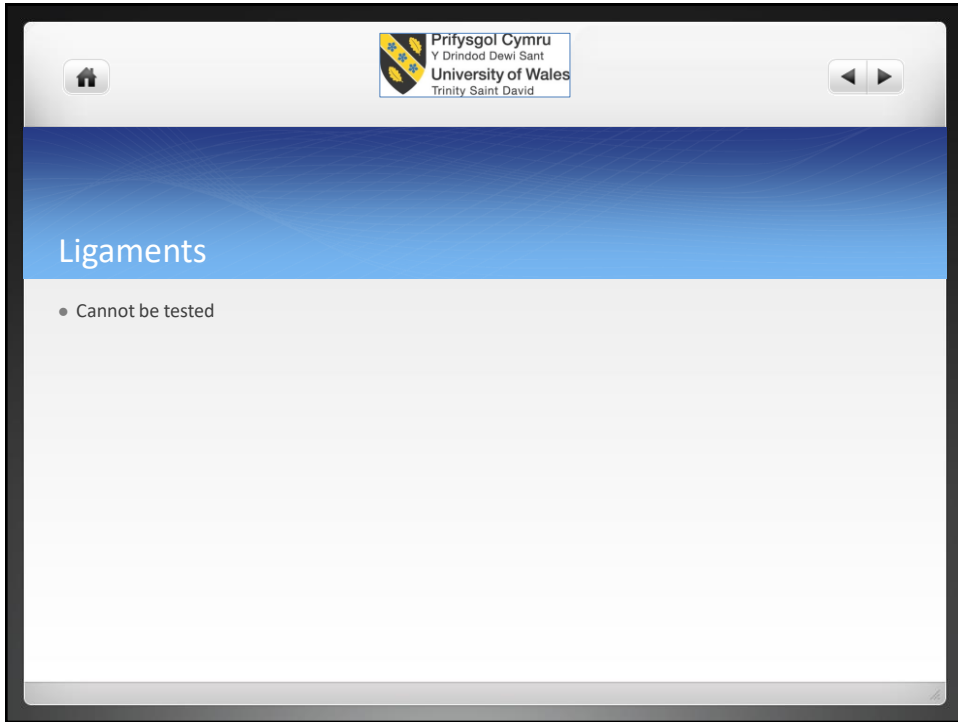



Internal abdominal oblique

- Origin
 - Thoracolumbar fascia, anterior 2/3 of intermediate line of iliac crest, lateral 2/3 of inguinal ligament
- Insertion
 - Lower three or four ribs, aponeurosis from margins of seventh to ninth costal cartilages, through xiphoid process and linea alba to pubic crest and pecten pubis
- Action
 - Both - Trunk flexion
 - Individual – Lateral flexion and rotation of trunk to same side



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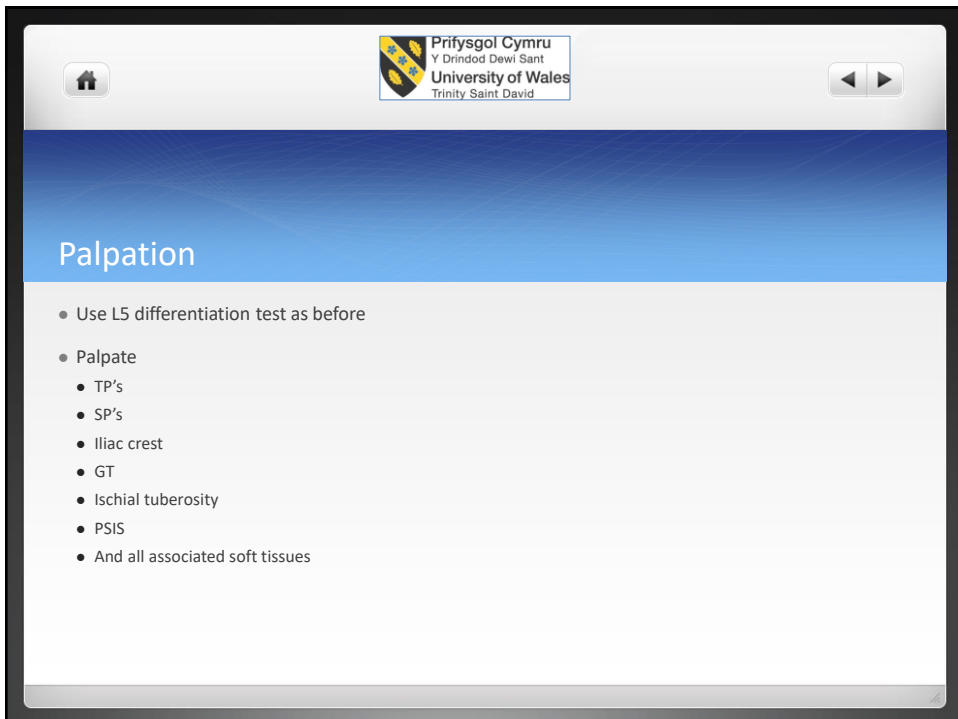


The slide is titled "Ligaments" and is part of a presentation from the University of Wales Trinity Saint David. The header includes the university's name in Welsh and English, along with its logo. The slide content is minimal, showing a single bullet point.

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Ligaments

- Cannot be tested

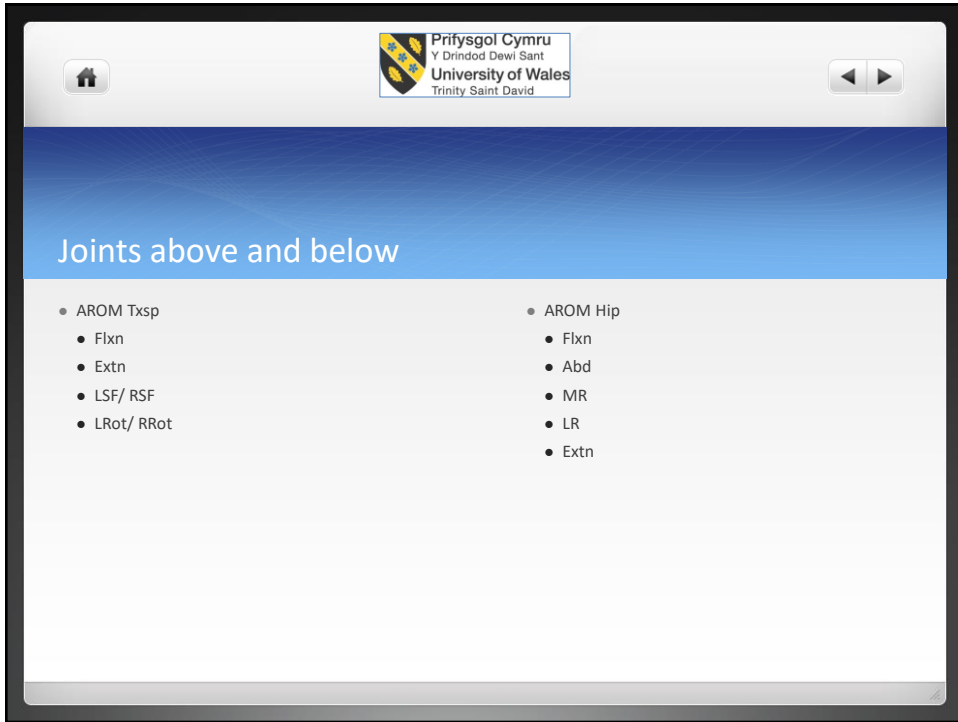


The slide is titled "Palpation" and is part of a presentation from the University of Wales Trinity Saint David. The header includes the university's name in Welsh and English, along with its logo. The slide content lists several points related to palpation.

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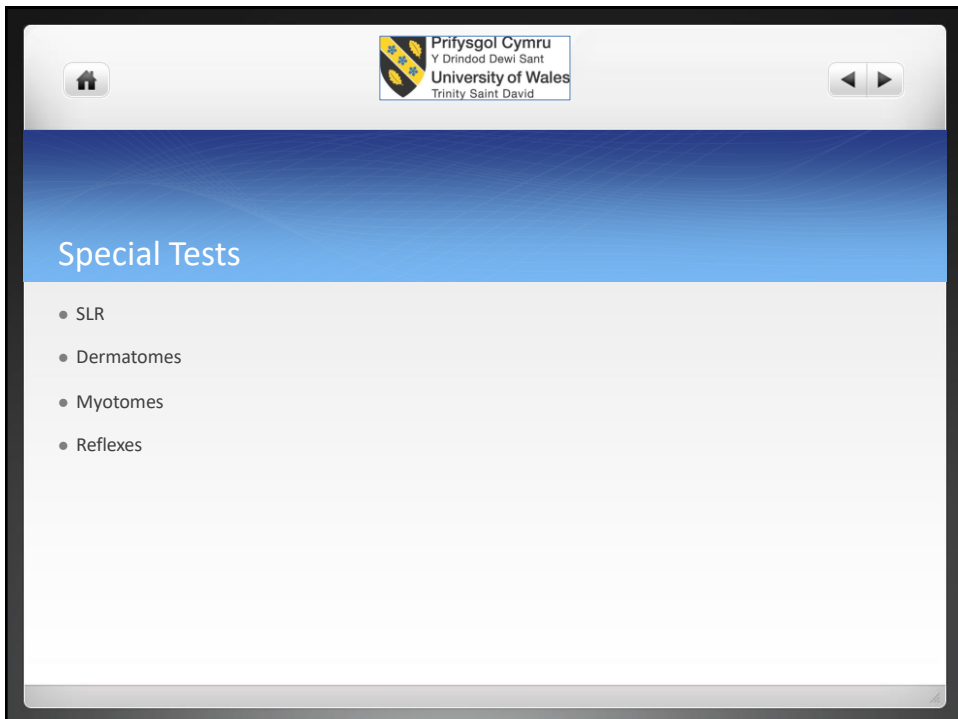
Palpation

- Use L5 differentiation test as before
- Palpate
 - TP's
 - SP's
 - Iliac crest
 - GT
 - Ischial tuberosity
 - PSIS
 - And all associated soft tissues



The slide is titled "Joints above and below" and is part of a presentation from the University of Wales Trinity Saint David. The header includes the university's name in Welsh and English, along with its logo. The slide content is organized into two columns of bullet points.

- AROM Txsp
 - Flxn
 - Extn
 - LSF/ RSF
 - LRot/ RRot
- AROM Hip
 - Flxn
 - Abd
 - MR
 - LR
 - Extn



The slide is titled "Special Tests" and is part of a presentation from the University of Wales Trinity Saint David. The header includes the university's name in Welsh and English, along with its logo. The slide content is a single column of bullet points.

- SLR
- Dermatomes
- Myotomes
- Reflexes





Straight Leg Raise (SLR)

- Athlete in supine (SRN)
- Passively **DF** with **KE**, and then add slow, passive **hip flxn** (SRN)
 - If Pt reports pain, P&N or Numbness, remove passive DF (SRN)
 - Positive test if Sx reduce once DF removed
 - If test negative repeat and ask pt to add Cxsp Flxn (SRN)
 - Positive if **Cxsp flxn** produces or increases symptoms







Straight Leg Raise (SLR)

- Sciatic nerve bias
 - As above but add hip **ADD** and **MR**
- Tibial nerve bias
 - Add **DF** with **Eversion** to test
- Peroneal nerve bias
 - Repeat test with **PF** and **Inv**

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Lower limb dermatomes

L2 – inner thigh
 L3 – medial knee
 L4 – anterior knee, medial malleolus to big toe
 L5 – lateral thigh, anterior shin to 2,3,4th toes and sole of foot
 S1 – posterior thigh to lateral & plantar foot and 5th toe
 S2 – popliteal fossa

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Myotomes

Nerve Root	Muscle
L2	Iliopsoas
L3	Quadriceps
L4	Tibialis anterior
L5	Extensor hallucis longus
L5 (and S1)	Extensor digitorum longus
S1	Peroneus longus and brevis
S2	Gastrocnemius
L5 and S1	Hamstrings
L4 and L5 (S1 and S2)	Gluteus maximus



Reflexes

- Knee Jerk
 - L3 & L4
 - Patient seated off the end of the plinth, knees flexed to 90° and relaxed
 - Use patella hammer to apply direct light blunt force to the patella tendon
 - Quadriceps jerk should provoke a twitch in to knee extn



Reflexes

- Ankle jerk
 - Pt may be seated with therapist holding the foot gently under the MT heads
 - Use patella hammer to apply a single direct tap to the Achilles tendon
 - Ankle should jerk in to Plantar flexion as a normal response
 - Alternative positions





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Other reflex tests

- Clonus test
- Upper motor neuron lesion
 - Large motions initiated by a reflex
 - Place the ankle passively and quickly in to DF
 - Subsequent beating of the foot in to PF (5 or more times) is considered an abnormal response



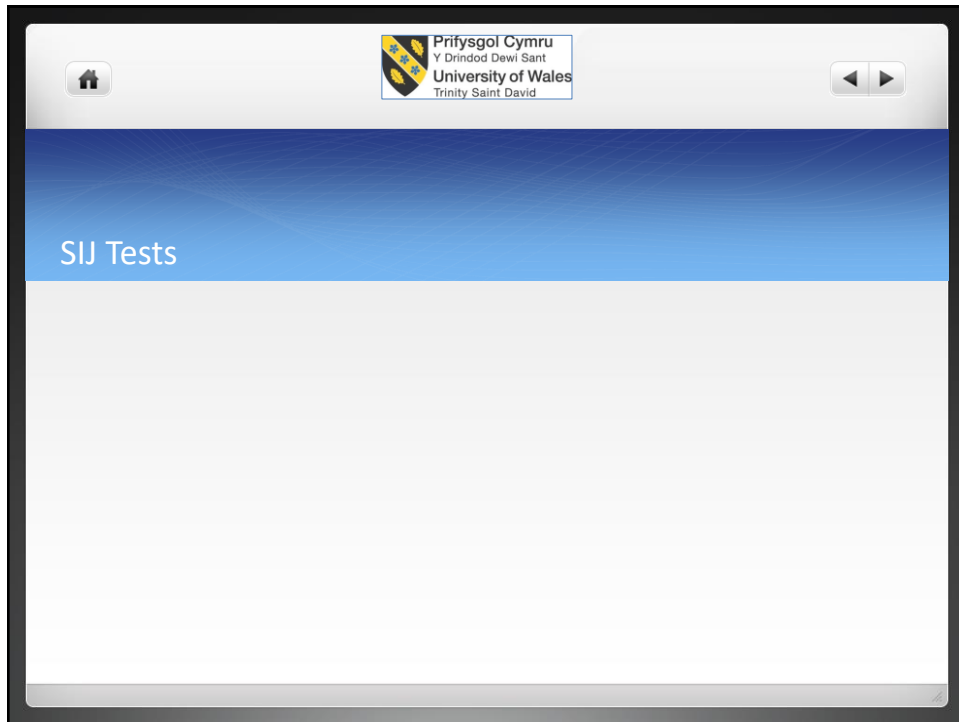
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Other reflex tests...

- Babinski Reflex
- Upper motor neuron lesion
 - Use the point of your reflex hammer
 - Patient is lying in supine
 - Start on the heel of the foot towards the lateral aspect and sweep anteriorly and medially towards the big toe
 - NORMAL MOVEMENT (in patients over 6 months of age)
 - Toes should grip or move in to flexion
 - ABNORMAL FINDING
 - Hallux extends and other 4 toes splay/abduct
 - Note Babinski Response (of big toe extn and splaying) is either present or absent





A screenshot of a presentation slide. The slide has a blue header bar with the text 'SIJ Physiological Movement' in white. Above the header, there is a navigation bar with a home icon on the left, a logo for 'Prifysgol Cymru Y Drindod Dewi Sant University of Wales Trinity Saint David' in the center, and a back/forward arrow icon on the right. The main content area of the slide is white and contains a bulleted list of four items and an anatomical diagram.

- Nutation/Counter Nutation
- Palpate PSIS and L4 in standing
- Ask patient to come in to SL Stance
- Note the counternutation of the PSIS relative to L4 on the NWB leg

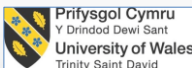
An anatomical diagram of the sacrum and pelvis. It shows the sacrum with a vertical line through its center. Two hands are shown on either side of the sacrum, with arrows pointing outwards from the sacrum towards the hands, indicating the direction of movement during nutation and counternutation.



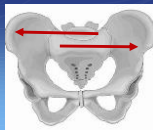
SIJ Special Tests

- Distraction *^A
- Compression *^A
- Thigh thrust *^A
- Sacral thrust *^A
- Pelvic torsion (Gaenslen's test) *
- ASLR (Flexion)
- ASLR (Extension)

- Test Item Cluster
- Laslett et al (2003)
- McKenzie Assessment
- 2 out of 4 has best predictive power
- When all 6 tests are –ve rule out SIJ



SIJ Distraction Test



1. The patient lies supine and the examiner applies a vertically orientated, posteriorly directed force to both the anterior superior ilac spines (ASIS)
 - (Cook and Hegedus 2013 , Laslett 2008, Laslett et al 2005, Laslett et al 2003).
2. The presumed effect is a DISTRACTION of the anterior aspect of the sacroiliac joint.
 - (Laslett et al 2005, Laslett et al 2003)
3. A test is positive if it reproduces the patient's symptoms. This indicates SIJ dysfunction or a sprain of the anterior sacroiliac ligaments
 - (Cook and Hegedus 2013, Cook et al 2007, Laslett 2008, Laslett et al 2005, Laslett et al 2003)

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SIJ Compression Test

- Pt sidelying.
- Examiner compresses pelvis with pressure applied over the iliac crest directed at the opposite iliac crest. (SRN)
- The movement causes forward pressure on the sacrum.
- Stress applied to posterior SIJ ligaments (Laslett and Williams, 1994)
- Positive sign: pain in posterior SIJ ligaments/reproduction of patients P+

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SIJ Thigh Thrust Test

- Pt supine.
- Examiner place hip in 90 deg flexion and adduction.
- One hand is placed beneath the sacrum to fixate its position while the other hand is used to apply a downward force to the femur.
- Examiner then applies posteriorly directed force through the femur at varying angles of abduction/adduction.
- Femur is used as a lever to push the ilium posteriorly.
- Positive sign: Reproduction of buttock/SIJ pain



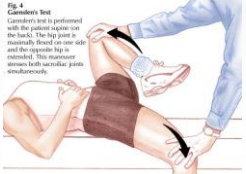
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Gaenslen's test

- Side lie position
- Bottom leg: hip flexion
- Top leg: passively extended
- Shear force placed through the SIJ
- Positive sign: Pain in SIJ/reproduction of Pt Sx
- Positive for a SIJ lesion,
 - Hip pathology,
 - Pubic symphysis instability,
 - L4 nerve root lesion
 - Femoral nerve also stretched on this test

Fig 4
Gaenslen's test







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SIJ Test Item Cluster (TIC)

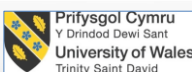
- Laslett et al (2003; 2005)
- SIJ
 - Distraction
 - Compression
 - Thigh thrust
 - Sacral Thrust
 - Gaenslen's**
- Rule of two:
 - Stop when you achieve 2 positives
- SIJ can only be ruled out if all 4 tests are negative

	Values (95% CI)
Sensitivity	0.88 (0.64, 0.97)
Specificity	0.78 (0.61, 0.89)
+ LR	4.00 (2.13, 8.08)
- LR	0.16 (0.04, 0.47)



ASLR Flexion and Extension (Force Closure)

- ASLR Flexion
- ASLR Flexion with added force closure
- ASLR Extension
- ASLR Extension with added force closure
- Positive sign if pain and required effort reduced and/or range increases



Summary

- Obs
- Quick touch
- AROM/PROM/RROM Lxsp
- Movement of SIJ?
- Accessory Movements
- MMTs
- Palpation
- Joints above and below
 - Txsp & Hip
- Special Tests
 - SLR
 - Dermatomes
 - Myotomes
 - Reflexes
 - Including Babinski
 - Clonus
 - SIJ Test cluster
 - Distraction, compression, thigh thrust, sacral thrust, Gaenslen's
 - Force Closure Flexion & Extension