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Root level Sensation C5 Lateral upper arm C6 Lateral forearm C7 Middle /f_i nger C8 Little /f_i nger T1 Medial forearm L1 Anterior thigh L2 Anterior thigh/groin L3 Anterior and lateral thigh L4 Medial

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Move

Range of motion is limited in the thoracic spine: /uni25CF Forward bending test (Figure 35.6). Ask the patient to bend forwards to touch their toes: /uni25CF structural scoliosis : a rib hump will increase in size (bulge posteriorly on the thoracic convex side) as the patient bends forwards; this is diagnostic of idiopathic thoracic scoliosis (rotatory deformity); /uni25CF functional scoliosis : the spine straightens as the patient bends forwards and no rib hump is visible; this flexible deformity is secondary to other abnormalities such as abnormal leg lengths and muscle spasm in the lumbar region. /uni25CF Lateral bending . This can be used to assess the flexibil - ity of a scoliosis. Radiographs can be taken in this position to supplement the assessment. Move

The wrist can be moved into flexion and extension, and ulnar and radial deviation. /uni25CF Wrist . Extension is tested by asking the patient to push the hands together into a ‘prayer’ position (Figure 35.13a If there is loss of extension, the palms will not meet and/ or one forearm will be dropped. Palmar flexion is tested in a similar fashion but with the hands pointing down and the back of the hands in contact (Figure 35.13b). Ulnar and radial deviation are tested by taking the patient’s hand in your own and moving the hand into these directions. /uni25CF Hand . A general screening assessment is to ask the patient to roll up their fingers from full extension to full flexion. This will reveal a trigger finger. Move

Di ff erentiate between movements of the shoulder joint and scapulothoracic movement of the scapula on the chest wall. Patients with a painful shoulder will commonly move from the scapulothoracic joint. Stabilise the scapula by placing the thumb over the coracoid process and the fingers of the same hand over the spine of the scapula. Start in the ‘neutral - position’ with the arms by the sides, elbows extended and the palms facing forwards. Note any pain throughout the range of movement (Figure 35.23). /uni25CF Forward flexion . Ask the patient to raise their hands in front to touch the ceiling while keeping the elbows extended (0–180°). /uni25CF Extension . Ask the patient to extend both arms behind (0–30°). /uni25CF Abduction . Shoulder abduction involves the glenohu meral joint and scapulothoracic movement. The first 60° of movement is mainly at the glenohumeral joint. Beyond this the scapula begins to rotate on the thorax and final movements are almost entirely scapulothoracic. Raise the arms sideways until the fingers point to the ceiling (180°). /uni25CF Adduction . Ask the patient to touch their other shoulder tip. /uni25CF Internal rotation . Ask the patient to touch their back with the dorsum of the hand and to raise their hand up the back as high as possible (normal range is thoracic spine level T7–9). /uni25CF External rotation . With the arms by the sides, bend the elbows to 90° and rotate the forearms to the mid-prone Christopher Jobe , contemporary , American orthopedic surgeon, specialising in shoulder and knee surgery , diagnostic musculoskeletal ultrasound and sports injuries. position. Ask the patient to separate their hands as much as possible (0–40°).

(d) (e) Figure 35.23 Movements of the shoulder: (a) forward /f_l ex ion; (b) extension; (c) adduc

tion; (d) internal rotation; (e) external rotation.

Move

The hip joint can be moved into flexion, extension, abduc - tion and adduction, and internal and external rotation (Figure 35.27). True hip movement ends when the pelvis begins to move. To detect true hip movement, simultaneously place a finger/hand on the ASIS contralateral to the hip being examined. Remember to compare both sides. Passive movement Hip flexion (120–0°) when lying supine The patient is asked to lie on their back and then roll themselves into a ball, flexing the hips and the spine fully . A comparison of the flexion of the two hips can be made in this position. The patient is then asked to hold onto the knee of the ‘bad’ leg with both hands (thereby fixing the pelvis in flexion) and the other leg is allowed to extend down onto the couch. A note is made - of any fixed flexion deformity (inability of the thigh to come down onto the couch). This ‘good’ hip is then returned to full flexion and the patient grasps that knee while dropping the other, ‘bad’, hip into extension. This modified Thomas’s test is the most comfortable and accurate way of measuring flexion and extension of the hip, minimising movement of the painful - hip (Figure 35.28). Hip extension (0–10°) when lying in a prone position Hip extension can be measured by asking the patient to roll onto their front and extend the hip. Rotation /uni25CF Internal rotation (45°) . With the hip flexed to 90° and the knee in 90° of flexion, hold the front of the knee with one hand and the foot with the other. Internally rotate the hip (the foot goes outwards), then externally rotate the hip (the foot goes in). The angle that the tibia makes with the vertical indicates the range of movement. Pain at the extremes of movement suggests inflammation in the hip. /uni25CF Abduction (40°) . The hip should be abducted by mov - ing the leg away from the midline with the other hand on the patient’s pelvis to detect any tilt in the pelvis.

(c) Figure 35.28 Modi /f_i ed Thomas’s test for assessing a /f_i xed /f_l exion deformity. A /f_i xed /f_l exion deformity of the right hip is indicated by an inability to fully straighten the right leg (arrow). (d) Figure 35.27 Hip movements: (a) internal rotation; (b) external rotation; (c) adduction; (d) abduction.

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The knee moves principally in flexion (0–135°) and extension (from 0 to –10°) (Figure 35.30). Assess hyperextension by placing one of your hands on the anterior aspect of the distal femur. Now lift the distal tibia with the other hand. Measure the angle or the height that the heel can be lifted o

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(c) Figure 35.31 Assessing the medial (a, b) and lateral (c, d) collateral ligaments.

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The movements of the foot and ankle are linked via the ankle, subtalar and midfoot joints. Remember the acronyms PAED – pronation, abduction, eversion and dorsiflexion – and SAPI – supination, adduction, plantarflexion and inversion. These are the two common general foot deformities. Move

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