Technical details regarding ultrasound guided injections.

Sacroiliac region injection:
1. Cranial approach: A convex low frequency transducer is positioned at 90 degrees to the ilial wing over its cranial edge approximately 7 cms abaxially from the tuber sacrale (TS). The needle is positioned cranial to the ilial wing and passes through the gluteal and longissiumus muscle in a caudal and distal direction and is visualized passing underneath, and parallel to, the ilial wing to make contact with bone. Needle: 18 gauge 6 inch spinal.
2. Caudal approach: A convex low frequency transducer is positioned at 90 degrees to the caudal edge of the ilial wing at the level of the fused transverse processes of the sacrum. The needle is passes through the gluteal musculature in a cranial and distal direction where it is visualized passing adjacent to, and no more than 1cm deeper than, the caudal edge of the ilial wing to avoid making contact with one of the four major neurovascular structures passing through the greater sciatic foramen. Needle: 18 gauge 6 inch spinal.
3. Cranial midline approach: (does not always require u/s guidance). The cranial edge of the contralateral TS is visualised ultrasonographically or palpated. The needle is placed 2-3cms cranial to the cranial edge of the contralateral TS and is advanced as if to make contact with the halfway point in an imaginary line drawn between the contralateral TS and greater trochanter (GT). Needle: 18 gauge 3.5 inch spinal needle.

Lumbar (and similarly thoracic) facet joint injection:
Convex low frequency transducer positioned transversely at 90 degrees to the spine just abaxial to the dorsal spinous processes. The cranial and caudal articular processes of the constituent vertebrae are visualised. The needle is inserted above (dorsal) to the contact point for the transducer approximately 2cm from mid line and advanced vertically axial to the fascia between the multifidus and longissimus muscles to make contact with the dorsal surface of the caudal articular process of the most cranial vertebral body as close to the joint margins as possible. Needle: 18 gauge 3.5 inch spinal needle.

Cervical facet joint injection:
The most common joints requiring facet medication are C5/6, C6/7, which appear similar and are most easily assessed with a microconvex transducer, although it is possible to proceed with a high frequency linear probe. Palpate the transverse processes of the caudal cervical vertebrae and place the transducer above these, just in front of the shoulder musculature, oriented vertically to produce a transverse image of the joints. Insert the needle above (dorsal) to the contact point for the transducer and the direction of advancement is estimated by imagining the course of the needle into the joint. However, the main rule is to start high as the angle of the needle direction should be steep to facilitate entry into the joint space, which is angled sharply from laterodorsal to medioventral. Needle: 18-gauge 3.5 inch spinal needle.

Transcuneal injection of the deep digital flexor tendon:
A microconvex probe is positioned over the apex of the frog (which has been soaked and pared) longitudinal to the terminal fibres of the deep digital flexor tendon (DDFT) where it terminates on the flexor surface of the pedal bone. Centrally located lesions can be visualised and a needle inserted proximally to the probe and advanced through the frog. Needle: 18-gauge 3.5 inch spinal needle.

**Ultrasound guided injections of subchondral cyst-like lesions within the medial femoral condyle:**

The limb is positioned in partial flexion and secured on a custom made block. The stifle is slightly abducted by rotating the foot outwards. The medial femoral condyle is imaged using a linear or curvilinear probe to locate and evaluate the lesion placed between the medial and middle patellar ligaments orientated in a caudal, dorsal and abaxial direction. A microconvex probe is best for needle placement due to it’s smaller foot print. The site for needle insertion is distal to (below) the transducer. The needle is advanced towards the lesion and should make contact with the concavity on the bone surface. Firm pressure may be required in cases where intact cartilage is present over the neck of the cyst to facilitate entry of the needle into the cyst cavity. It may be necessary to block the medial femorotibial joint in painful horses that resent flexion of the limb for an extended period. Needle: 18-gauge 3.5-inch spinal needle.