

Compartment Pressure Testing

Q1: What is Compartment Pressure Testing?

- This is a diagnostic procedure where the pressures in one or more of the compartments (often the anterior or deep posterior compartments of the **lower legs**; or the volar or dorsal compartments in the **forearm**) are tested with a needle attached to an intracompartmental pressure monitor.
- The intention is to diagnose or exclude the medical condition known as Chronic Exertional Compartment Syndrome (CECS).
- There are various ways of performing this and the interpretation of results can be challenging. An abnormal result does not always equate to CECS!
- Lower limb CECS is a known cause of **exercise-induced leg pain (EILP)**. EILP typically occurs in sports which involve running, marching or jumping.
- *Compartment Pressure Testing is more frequently performed for issues arising from the **lower limb** but can occasionally be carried out for issues in the **upper limb (forearm)** too. For that reason, many of the questions and answers below will focus more on the*

lower limb but the general principles of preparation and testing are similar.

Q2: What preparation is required?

- An initial clinic appointment will be necessary where Dr Seah will take a detailed medical history and perform a clinical examination to rule out other causes of exercise-induced leg pain (these include musculoskeletal, vascular and neurological causes).
- These discussions are required as patients with known severe clotting disorders, on anticoagulation medication, have metalwork from previous surgery to the area or are generally unwell may not be suitable to have this procedure performed. Your safety is paramount.
- As part of that initial clinic work-up, he may need to organise imaging investigations (such as X-rays, Ultrasound, MRI or CT scans) or blood tests.
- You may have been referred to see Dr Seah specifically for this investigation and had some of these investigations already. If so, please bring along any previous clinic letters, blood test results, imaging reports and images for your initial clinic appointment with Dr Seah.
- If Dr Seah agrees that you should progress to compartment pressure testing, he will ask you to make an appointment (often for 60-90 minutes) to have this done. This will often be performed on a separate day.

- *You should attempt to go for several runs over a few days before you have the procedure done- this increases the likelihood of being able to reproduce your actual symptoms consistently on the day of testing, making the test results more accurate.*

Q3: What does the procedure involve?

- Following an informed discussion, you will be asked to sign a written consent form.
- CECS testing is carried out using a handheld intracompartmental pressure monitoring system. This involves a small needle catheter inserted under local anaesthesia and sterile conditions into the compartment/s to be examined.
- Pressure measurements will be taken and a high pressure reading is suggestive of CECS. Pressure measurements may be repeated for between 1 to 5 minutes after exercise has stopped.
- During the procedure, you will be asked to run on a treadmill in order to reproduce the symptoms of leg pain/ weakness / numbness that you may experience regularly on exercise.
- *You will need to bring your own running attire, running shoes and gym towel for this test.*

- *Ensure you have eaten and drank clear fluids beforehand.*
- *Ensure you are well rested before the test as you may be asked to run very vigorously on the treadmill in order to accurately reproduce your leg symptoms.*

Q4: What happens after you have had the procedure?

- Firm pressure and a clean dressing will be applied over the site of injection.
- Your results will be discussed with you after the procedure.
- Dr Seah will always write back to the referrer with the results to keep them informed.

Q5: Are there any risks?

- This is generally a safe procedure. You may experience some bruising at the site where the needle has been injected.

- Care is taken to do this under aseptic (clean) conditions but there is a very small risk of infection (less than 0.01%) where the cannula is inserted. If you should experience severe pain, fever or swelling in the days after the procedure, you should contact your doctor or attend the emergency department outside of normal working hours to have it checked.
- There is a very small chance of getting an acute compartment syndrome (less than 0.01%) if one of the blood vessels in your legs is damaged during the procedure. If you develop severe pain and swelling within 24 hours of the procedure, you should attend emergency department to have it checked. Incidentally, the treatment for this is the same operation (surgical release of the affected compartment) as CECS.
- During the Covid-19 pandemic and lockdown, additional safety precautions will be applied to ensure the safety of the patient and clinic staff throughout the testing procedure. These precautions will be explained to you in detail during the initial consultation.

Q6: Should I rest after the procedure?

- There is no specific need to rest after the procedure.
- Hydrate well.

- You can return to gentle exercise the following day.
- Avoid strenuous exercise or impact (e.g. sprinting, aerobics) for 48 hours after the procedure.
- Oral painkillers can be helpful if you are sore after the procedure. This soreness often settles quickly- within a few hours to a few days.