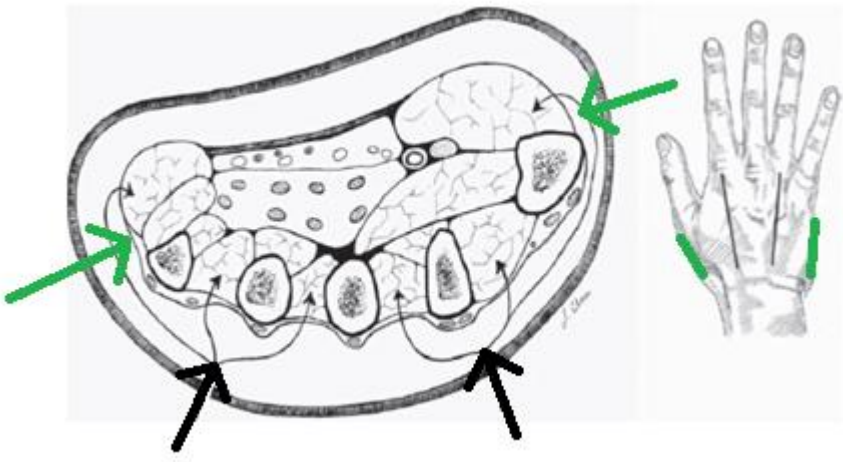


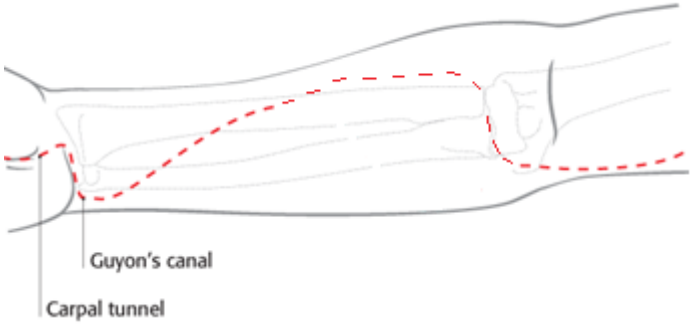
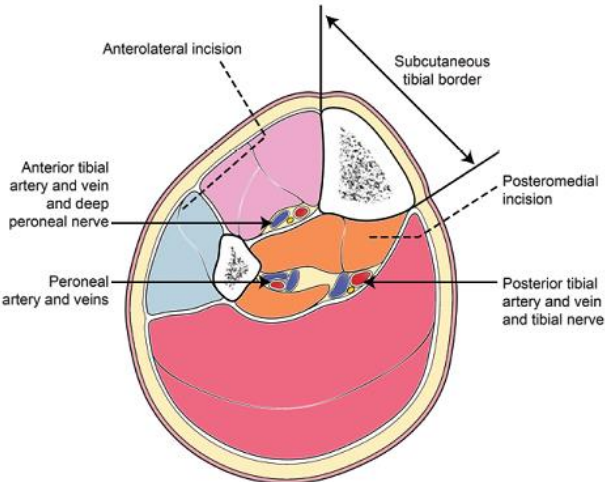
High Clinical Suspicion - Mechanism	- Young males with injury to lower leg or forearm - Altered sensorium (obtunded or regional anaesthesia) - Hypotensive patient - Anticoagulated patients <u>Intrinsic Causes</u> - Fractures - Crush injuries - Vascular injury and re-perfusion swelling - Fluid extravasation / injection into soft tissues - History of prolonged external contact pressure (eg operative limb positioning / IVDU overdose) - Burn <u>Extrinsic Causes</u> - Tight dressing / cast
<u>PATHOLOGICAL</u> Definition	- Raised pressure within a closed compartment (intrinsic / extrinsic) resulting in tissue ischaemia and if untreated, necrosis.
<u>CLINICAL</u> Definition	- Tense compartment - Out of proportion pain refractory to appropriate analgesia - Pain exacerbated by passive stretch of affected muscle group - LOSS OF PULSE and NEUROLOGIC CHANGES ARE LATE signs. Treatment should be initiated before these findings become evident.
<u>DIAGNOSTIC</u> Definition	- Direct compartment pressure (compared against diastolic BP) - o using dedicated measurement device - o central line pressure transducer ▪ use 'orange' or 'grey' cannula ▪ flush through ▪ zero at level of limb to be measured ▪ insert cannula into compartment ▪ flush through ▪ wait for pressure measurement to stabilise ▪ repeat for all affected compartments - Compartment Pressure >30mmHg or within 30mmHg of diastolic blood pressure (whichever is lower)

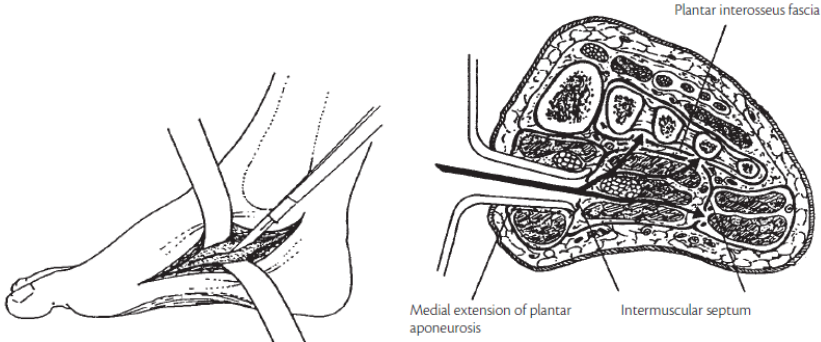
Initial Treatment of Suspected AND Confirmed Compartment Syndrome	- Ensure extrinsic causes have been resolved. - Maintain some form of effective splintage to manage pain relief. - Elevate FULLY supported at level of heart with downstream gradient between digits and shoulder/hip - Adequate opiate analgesia, administered in 10mg boluses (lower doses to be considered in children, elderly and renal impairment). Boluses should be given at short intervals. - Supplemental high flow oxygen - Nil by mouth and maintenance IV fluids - Discuss with senior member of orthopaedic team +/- book theatre
Surgical – Emergency Decompression	- Full length skin and fascial incisions should be used to ensure ALL affected compartments are adequately decompressed. - See Fasciotomy Diagrams below. - Burns - o Manage with standard escharotomies, dressings and fluid resuscitation
Surgical – Closure	- In the presence of underlying fixation. Soft tissue coverage should not be delayed. - In the absence of underlying fixation, no attempt should be made to close before 48hrs. - o Fasciotomy wounds for significant compartment syndrome frequently need split skin graft coverage and this should be considered at 48hrs. Routine use of incremental closure with repeat theatre visits is not recommended in the BOA/BAPRAS guidelines. - o Negative Pressure Wound Therapy (NPWT) should be considered as an adjunct for wound dressings, closure and use over split skin grafts.
Special Considerations	
Associated Fracture	Skin incisions used for decompression should allow appropriate internal fixation. Primary closure will not be possible at the 1st procedure. Consideration should be given to the following treatment options. - Compartment decompression followed by temporary external fixation of fracture. Patient should then be transferred to facility with appropriate access to simultaneous orthopaedic and plastic surgery capability for definitive fixation and soft tissue cover at the earliest available opportunity. Transfer should occur within 48hrs. - If plastic surgery capability is available at the time of decompression, consideration can be given to definitive fixation and split skin graft coverage at the same sitting. NPWT or occlusive dressings should be used to minimise risk of hospital

	acquired infection, until soft tissue and skin coverage achieved. Antibiotics should be administered until 24-48hrs following soft tissue and skin coverage (see TVTN Open Fracture Protocol for antibiotics and doses).
Late Presentation	It is often difficult to determine the exact timeline in the development of compartment syndrome. However compartment decompression should NOT be performed in the presence of significant necrotic muscle. Fasciotomies under this circumstance is associated with a VERY HIGH rate of MORBIDITY (amputation) and MORTALITY. Effective treatment will require an extension of the 'Initial Treatment' described above and additional. - Critical Care support - Increased fluid replacement to ensure adequate diuresis - Daily monitoring of CK and renal function - Likely implementation of dialysis - Physiotherapy and splinting to minimise effect of contracture formation Acceptable outcomes can be achieved with this strategy

Fasciotomy Diagrams

Hand	 2 dorsal incisions placed over 2nd and 4th metacarpals. Additional incisions in the axis of the 1st and 5th MC can be considered to allow easier decompression of the thenar and hypothenar muscle compartments. Finger fasciotomies are performed using mid axial longitudinal incisions along the non-dominant side of the digit.
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Upper Limb	 Standard distal incision to allow access to carpal tunnel, Guyon's canal. In addition it is better for skin grafting if primary closure is not possible. It can be extended medially to de-compress the arm. The incision can be modified to accommodate a volar approach to the radius if there is an underlying fracture requiring fixation. The extensor compartment and mobile wad can be decompressed with a straight longitudinal incision over these compartments.
Buttock + Thigh	Kocher Langenbeck extending down to knee with full length split in gluteal fascia and iliotibial band. NB Inferior gluteal neurovascular bundle within substance of gluteus maximus 10cm from PSIS. The extensors and flexors can be decompressed through this incision. NB Do not enter flexor compartment through the linea aspera as this will damage the perforators. An additional medial longitudinal incision can be used to decompress hip adductors.
Leg	 Use 2 incision, 4 compartment decompression as per BOA / BAPRAS guidelines. MARK BOTH INCISIONS BEFORE MAKING 1st INCISION. Postero-

	medial incision 1-2cm posterior to posterior border of tibia NB stay anterior to posterior tibial NV bundle. Antero-lateral incision 2cm lateral to tibial crest NB Superficial peroneal nerve leaving peroneal compartment in lower part of antero-lateral incision.
Foot	 Prior to fasciotomy consideration should be given to future surgical intervention. There are occasions when it may be appropriate to consider managing foot compartment syndrome non-operatively. Discussion with the surgeons who will perform definitive care is recommended prior to decompression.