

REGROUPING 6

Procedures & Techniques

PROCEDURES & TECHNIQUES

18.02.05

Preamble - Objectives and Outcomes

ALSO SEE [OVERALL PREAMBLE](#) (hypertext link on webpage)

When performing plastic and reconstructive surgery it is imperative that standard procedures and techniques are in place to ensure the best outcome is achieved for the patient. To be effective in this area a surgeon requires technical skill, medical expertise and the capacity to respond effectively to their patients' needs and expectations.

The graduating trainee will be able to:

- Demonstrate procedural knowledge and technical skills
- Demonstrate manual dexterity required to carry out procedures
- Analyse their own clinical performance for continuous improvement
- Plan and implement a risk management plan
- Communicate information to patients about procedures, potentialities and risks associated with surgery to encourage participation in informed decision making
- Write comprehensive and detailed reports for medicolegal purposes, insurance providers etc
- Assume responsibility for own on-going learning
- Critically appraise new trends in Plastic and Reconstructive Surgery
- Acknowledge and learn from mistakes

For Recommended Reading, Delivery and Assessment see the module for each body zone

Revisional Knowledge following on from that gained from the PRS Science and Principles Module trainees are required to be able to analyse and appropriately apply the science and principles of the following in clinical environments:

Head & Neck

Anatomy

- Surgical exposures eg maxilla, pterygoid space, infratemporal fossa
- Of neck dissections
- Of parotidectomy

Hand, Upper Limb & Microsurgery

- Nerve healing and regeneration. Basic techniques of nerve repair and reconstruction

Microsurgery

- Replantation and free tissue transfer; principles and techniques.
- Principles of perioperative management, including monitoring and anticoagulation.

Lower Limb and Foot

Anatomy

- Detailed anatomical knowledge underlying local and distant flap dissection
- Of groin dissection

Trunk, Perineum & Breast

Surgical Principles

- Clinical examination of breast ,perineum, abdomen and back
- Tissue expansion and liposuction principles
- Orientation of incisions and scar management

Core Knowledge — detailed knowledge and technical expertise is expected in these areas. All trainees are required to be able to diagnose, plan, effectively perform and manage:

Plastic & Reconstructive Surgical Science & Principles

Basic Surgical Techniques in Plastic & Reconstructive Surgery

- Excision and debridement
- Suturing techniques
- Sutures
- Dressings, drains and splints
- Skin graft types and techniques
- Flap types and techniques including flap geometry design and practical application
- Repair of vessels, nerves, tendons
- Open reduction and internal fixation (hand and craniomaxillofacial), external fixation
- Operating room equipment (including diathermy, laser, microscopes, liposuction, etc) and instruments

Craniomaxillofacial

Techniques

- Craniomaxillofacial surgical exposures
- Distraction osteogenesis – biology and clinical uses
- Imaging in the craniofacial region – US, CT, MRI and angiography
- Internal fixation methods
- Cranial bone grafting
- Prosthetics in the craniomaxillofacial region

Head & Neck

- Management of the above tumours and of the neck in detail (margins, jaw resections, marginal, segmental), neck dissections – types and techniques
- Reconstructive techniques in head and neck cancers including local flaps, regional flaps, distant flaps, free flaps and composite flaps with bone reconstruction
- Management of facial paralysis resulting from tumour surgery
- Options, methods and anatomy of each surgical technique

Facial Soft Tissue

Face, Neck & Brow

- Excision, management, and reconstructive options using:
 - Grafts
 - Split skin, composite, and full thickness
 - Donor sites
 - Flaps
 - General principles
 - Specific to head and neck including local, regional and distant, simple and compound flaps
 - Tissue expansion and tissue engineering

- Other techniques including cryotherapy, laser ablation, intense pulse light, radiotherapy, hyperbaric treatment etc
- Undertake appropriate assessment, surgical procedures, and manage:
 - Aesthetic Facial Surgery
 - Manage complications including minimisation and treatment.
 - Secondary surgery and revisionary procedures.
 - Aesthetic Brow Surgery
 - Manage complications including minimisation and treatment
 - Management of ancillary muscles and / or neural procedures
 - Aesthetic Submental & Chin Surgery
 - Manage complications - minimisation and treatment
 - Secondary surgery and revision procedures

Eyelids

- Manage complications - minimisation and treatment

Ears

- Manage complications - minimisation and treatment

Nose

- Surgical reconstructive techniques
- Septoplasty*, turbinate*, and paranasal surgery*
- Treatment options of augmentation of the traumatic, congenital or racial deformity and materials available (autogenous versus alloplastic)
- Manage Complications - minimisation and treatment

Lips

- Surgical reconstructive techniques
- Secondary revisionary procedures
- Adjuvant techniques including peels, laser abrasion, implantable and injectable materials - alloplastic versus autologous including fat injection

Hair Bearing Tissues

- Ablative *, reconstructive, and transplantation techniques of scalp and brow and other areas.

Hand, Upper Limb & Microsurgery

- Tendon transfers – principles, indications and techniques.
- Replantation revascularization of digits, major limbs, scalp and other parts.
- Free tissue transfer; principles and techniques.
- Regional reconstruction – upper limb, lower limb, head and neck, breast and trunk.
- Nerve repair and grafting, neurotization neurolysis.

Lower Limb and Foot

- Of the lower limb – x-ray, bone scan, lymphoscintigraphy, CT, MRI, MRA, angiography, Doppler ultrasound
- Investigations of circulation of the lower limb
- Local anaesthetic techniques – regional blocks including femoral and ankle blocks
- Lymph node surgery – sentinel node biopsy, groin lymphadenectomy
- Regional reconstructive options – hip, sacral, ischial, groin, thigh, knee, leg, ankle, foot, heel, sole
 - Non-operative, local, regional, distant flap options
 - Advantages and disadvantages of each option

- Indications and techniques of utilisation for flaps of the lower limb including: gluteal, posterior thigh, vastus lateralis, gracilis, TFL, anterolateral thigh, lateral thigh, medial thigh, saphenous, sural (including reversed), gastrocnemius, soleus, fibular, peroneal, anterior tibial, posterior tibial, lateral supramalleolar, lateral calcaneal, FHL, dorsalis pedis, EDB, medial plantar, abductor hallucis.
- Hyperbaric oxygen therapy – indications and technique

Trunk, Perineum & Breast

Trunk

Sternal defects (congenital and acquired)

- Principles of chest wall reconstruction
- Flap procedures – lat dorsi, pec major, omental,
- Rectus abd, trapezius

Abdominal defects (congenital and acquired)

- Principles of abdominal wall reconstruction
- Techniques – closure, grafts, expansion, alloplastics
- Tensor fascia lata, rectus femoris, rectus abdominus, external oblique, latissimus dorsi flaps

Back defects (congenital and acquired)

- Principles of posterior trunk reconstruction
- Techniques – debridement, closure, graft, flaps

Hip region reconstruction

- Flaps:
 - Rectus femoris
 - Vastus lateralis

Abdominoplasty

- Identify operative objectives:
 - Incision type
 - Suction lipectomy
 - Mini abdominoplasty
 - Full abdominoplasty
 - Muscle plications
 - Muscle advancements
 - Encircling truncal reshaping principles
 - Closure techniques

Contouring with liposuction

- Perform appropriate operative techniques
 - Dry, wet, tumescence
 - Infiltrations
 - Suction assisted lipoplasty
 - Ultrasound assisted lipoplasty

Perineum

Hypospadias repair

- Passing knowledge of historical and staged techniques
- Recent techniques
 - Duckett, Horton flip-flap
 - Tube graft, pedicled tube flap
- Current techniques
 - Staged
 - Durham-Smith, Bracka

- Snodgrass TIP
- MAGPI (Meatal Advancement and Glansplasty)
- Relevant features of some the techniques
 - Longitudinal incision of urethral plate
 - Healing properties of a healthy urethral plate
 - Waterproofing layers
 - Dorsal plication (Nesbit)
 - Cosmesis
 - Graft donor sites
 - Cheek, bladder mucosa, prepuce
- Current Goals
 - Straight stream and erection
 - Terminal and vertical meatus
 - Glans cosmesis
 - Single stage when able
 - “Planned “ two stage surgery when needed

Vaginal disorders and reconstruction principles

- Explain reconstructive principles

Vulval defects and reconstruction principles

- Reconstructive principles
- Specific graft, flap options

Breast

Breast reconstruction

- Mound reconstructive techniques
 - Tissue expander/implant
 - Flap/implant
 - Flaps
 - Abdominal donor
 - Back donor
 - Pelvic girdle donor
 - Contralateral breast donor
 - Transfer techniques
 - Pedicled
 - Pedicled plus anastomoses
 - Free
 - Donor closure techniques
- Nipple areolar complex reconstructive techniques
 - Nipple
 - Flap
 - Sharing technique
 - Areolar
 - Graft
 - Tattoo

Breast Reduction

- Operative techniques
 - Nipple pedicle orientation
 - Parenchymal shaping
 - Excisional
 - Suspension
 - Liposuction
 - Skin incisions

Breast augmentation

- Operative techniques
 - Incisions – inframammary, areolar, axillary
 - Plane of implant pocket – subpectoral, subfascial, sub glanular
 - Endoscopic

Mastopexy

- Operative techniques
 - Skin incisions
 - Parenchymal shaping
 - Excisional
 - Flap rearrangement
 - Augmentation options

Gynaecomastia

- Operative techniques
 - Surgical +/- liposuction

Skin & Integument

- Clinical examination including dermatoscopy and biopsy techniques
- Detail knowledge of wounds (including the operative and non-operative care of wounds), grafts and flaps including their types, classification, planning and management, including:
 - Grafts
 - Split thickness, full thickness, composite, mesh
 - Flaps - Local:
 - Transposition, advancement, rotation
 - Flaps - Distant:
 - Pedicle and free, simple and complex / compound
 - Single or multi-stages
 - Prefabricated, Tissue Engineering
 - Monitoring, care, and management of the flap, and the failing flap.
- Understand the therapeutic and pathological effects of, and implications and management of, the effect of radiotherapy, lasers and intense pulse light, cryotherapy, cautery, sun exposure and hyperbaric therapy, steroids, topical chemo and immuno therapy.
- Understanding of the embryology and development, both normal and pathological, of fat tissue.
 - Management of Fat deposition by lipectomies and liposuction (all forms)
- Assessment, diagnosis, investigation and management of specific areas of skin and integument loss
 - Especially 1) lower limb 2) head and neck 3) special sites.
- Management of burns including thermal, electrical and chemical
 - Assess burn wound injury including area, depth and specific areas
 - Management of specific areas eg. eyes, ears, lips, face and neck, feet, hands, perineum and joints
 - Escharotomy – indications, sites, techniques, and limb monitoring
 - Secondary reconstruction
 - General and specific areas
 - aesthetic and functional aspects
 - Skin substitutes and tissue engineering
 - Burn wound management
 - Excisional techniques including tangential excision
 - Grafting
 - Auto graft, allograft*
 - Skin substitutes (dermal and epidermal)*
 - Burns scar management

Outline Knowledge — in this area, knowledge of only the principles is required. Detailed knowledge and technical expertise in these topics is appropriate for subspecialist post FRACS fellowship training. Therefore trainees are expected to be able to describe and discuss treatment options and management of:-

Craniomaxillofacial

- Surgical management of craniosynostosis and craniosynostosis syndromes, timing, operative procedures
- Surgical techniques, osteotomies of cranium, jaws, periorbital (eg hypertelorism), skeletal augmentation

Head & Neck

- Technique of and indications for head and neck endoscopy

Hand, Upper Limb & Microsurgery

- Advanced investigation-Arthroscopy, mini C-arm operation.
- Anaesthesia for upper limb surgery.
- Arthroplasty - biological reconstruction and alloplastic devices.
- External fixation and bone distraction.
- Tendon transfers tenodesis and joint stabilization and other management of nerve and muscle dysfunction.
- Thumb, finger and hand construction and reconstruction including non-microsurgical transfers e.g. neurovascular island flaps, groin flaps, pollicization, digital transfer.
- Local anaesthetic and steroid injection techniques.
- Toe to hand transfers.
- Brachial plexus reconstruction.
- Microsurgery of infertility.
- Microsympathectomy
- Microlymphatic surgery.

Lower Limb and Foot

- Technique of total contact casting
- Techniques of external skeletal fixation and bone lengthening
- Levels of function of prostheses and orthoses of the lower limb

Trunk, Perineum & Breast

- Understand
 - Chest wall reshaping with complex procedures
 - Complex perineal reconstruction
 - Pelvic wall reconstruction
 - Encircling truncal surgery
 - Endoscopic techniques for:
 - Flap harvest
 - Abdominal muscle tightening
 - Breast implant placement
 - Breast sharing operations