



REGULATIONS

FOR ADMISSION TO THE FELLOWSHIP OF

THE COLLEGE OF ORTHOPAEDIC SURGEONS OF SOUTH AFRICA

FC Orth(SA)

Introduction

The examination comprises the FCS (SA) Primary followed by the FC Orth (SA) Intermediate and FC Orth (SA) Final components. Recognised training is required to write the FC Orth (SA) examinations as explained in the relevant sections.

The FC Orth (SA) Final exam must be passed within 8 years of passing the FC Orth (SA) Intermediate. The constituent college executive committee will consider an extension if the candidate remains in a registered training post. The head of the relevant registrar-training programme must submit a report to the constituent college executive committee, clearly indicating the relevant information to substantiate the application.

1.0 PRIMARY (Part 1A) EXAMINATION

- 1.1 The primary examination is set and marked by the College of Surgeons.
- 1.2 This examination tests the candidate's basic science knowledge common to all surgical disciplines in the areas of anatomy, physiology, pathology and microbiology.
- 1.3 The format, syllabus and recommended reading is available in the FCS(SA) regulations
- 1.4 Requirements to register for the primary examination:
 - a. HPCSA registered or registrable post-internship qualification to practise medicine
 - b. successfully completed Basic Surgical Skills course

2.0 INTERMEDIATE (Part 1B) EXAMINATION

- 2.1 This examination tests the candidates knowledge of caring for the surgical patient including ICU and Trauma care, and the principles of Orthopaedic Surgery
- 2.2 Requirements to register for the intermediate examination:
 - passed FCS (SA) primary examination
 - 18 months of approved surgical training of which 12 months is Orthopaedic Surgery, 3 months in an Intensive Care Unit* and 3 months in "General Surgery".
 - Rotation within a dedicated Trauma Unit is recognized as a "General Surgery Rotation" as long as the full three months was spent within the unit and the unit has appropriate emergency or trauma surgery specialists with a full academic programme and regular ward rounds.
 - Rotating in a Plastic and Reconstructive Surgery Unit is recognized as a "General Surgery Rotation" as long as the full three months was spent within the unit and the unit has appropriate Plastic and Reconstructive surgery specialists with a full academic programme and regular ward rounds
 - ATLS certified - Due to the backlog in the availability of ATLS Courses during the Covid pandemic (2020/2021/2022) a waiver for this will currently be allowed. The candidate will however have to show that the ATLS course was successfully completed before being able to register for the FC Orth (SA) final examination.

* Dedicated unit providing invasive ventilation with daily rounds by critical care physician/anaesthetist dedicated to the ICU to which the candidate was allocated on a full-time basis.¹

¹ Requirement

- 2.3 The Primary and Intermediate examinations may be attempted concurrently, but if the primary is failed and intermediate passed, no credit will be given for passing the Intermediate and both have to be retaken.
- 2.4 The Intermediate must be attempted as a whole and cannot be split into parts.
- 2.5 Structure of the Intermediate examination:
The examination consists of two 3 hour papers of 100-120 single best answer (SBA) questions where the structure is a scenario, question and 4-5 options with one correct answer.

Paper I – Care of the surgical patient

- The examination blueprint, syllabus and recommended reading is available in the FCS (SA) regulations and on the CMSA FCS (SA) website.
- This component assesses the candidates' knowledge of surgical patient care, which is common to all surgical disciplines, including intensive care.
- These questions are drawn from the FCS (SA) Intermediate paper 1 database. They are reviewed and moderated by the FCS Orth examination committee / delegated parties to assess the quality and applicability of the SBAs received.

Paper II - The principles of orthopaedic surgery

- The syllabus of the orthopaedic component is set out in Appendix A.

- 2.6 Syllabus for the intermediate examination
See appendix A
- 2.7 Analysis of the intermediate examination results
- No correction for guessing will be applied.
 - The examination committee/delegated parties/convenor and moderators will analyse the SBA results in terms of the individual questions/answers and questions with poor metrics will be flagged. These questions will be checked for correctness and appropriateness, excluded if not and the totals recalculated.
 - The overall average will be assessed which is expected to be around 55 – 60 % based on past examinations. Should this vary by more than 5%, the examination committee will re-adjust the marks using a ratio to correct the average.
 - The analysis of the intermediate examination result are moving towards the Modified Angoff standard setting approach and will be inducted throughout the 2023 examination cycle.
- 2.8 Pass criteria for the intermediate examination
- The candidate must pass both papers with at least 50%

3.0 FINAL (PART 2) EXAMINATION

- 3.1 This exam assesses whether the candidate is adequately prepared for independent orthopaedic surgical practice in terms of a basic science foundation, clinical / operative skills and foundation competencies related to paediatric and adult orthopaedic surgery in the South African milieu.
- 3.2 Requirements to register for the Final (PART 2) examination:
- a. Passed the CMSA primary (1A) and intermediate examination (1B) or has a Fellowship of one of the Colleges with which there is an agreement of reciprocity.
 - b. Minimum of 48 months of recognised orthopaedic surgical training in a HPCSA accredited registrar training post on a university affiliated rotation signed off by his/her HOD. This excludes community service time.
 - c. Candidates may register to write the final up to three years following leaving their registrar rotation and thus their HPCSA registrar training number. After this they will need to complete an additional two years of recognised registrar training on a formal university rotation before re-attempting the examination. The two years of recognized training must be supported by a letter from the appropriate academic head that clearly stipulate the training circuit, training received, 6 monthly assessments and that this training time is thus approved. This may well necessitate the re- writing of the expired intermediate examination (8 years).
 - d. The intermediates exams expires after 8 years and may need to be rewritten to allow entry into the final exams. Registrars within their training period or candidates within 3 years of first exiting the programme will be exempt from re-writing.
 - e. Provide the consolidated portfolio of surgical cases on registration for the written examination and updated prior to the orals. This data may be analysed and published for educational purposes (patient identification delinked).

- f. The logbooks should be available in electronic format on request.
- g. Candidates entering registrar training must use the LogBox app online to register their cases www.logbox.co.za.
- h. Completed all Work Based assessment modules effective 1 January 2023, pro-rata dependent on years after initiation (see below).

3.3 Work based assessment (WBA) effective 1 January 2023

- To ensure that clinical competencies are achieved and reduce the high stakes end of training examination, local continuous work based assessment (WBA) and entrustable professional activities (EPA's) is being introduced.
- Following discussion between all HODs, 15 core diverse procedures were decided upon (appendix B).
- Candidates are expected to have completed these before registering for the final examination on a pro-rata basis at 2 per semester from 1 January 2023, i.e. those writing 2023 second semester will need 2, 2024 first semester 4 etc. until we reach 2027 when every candidate will need to complete all 15.
- Work-based assessments will gradually be introduced throughout 2023
- Initially it will be a paper-based system where the candidate will indicate to their local consultant and HOD that they are prepared and identified a suitable case. The HOD will then delegate an appropriate local consultant examiner. The candidate will present the case, the surgical plan and then perform the procedure with the examiner present in theatre and preferably scrubbed. The candidate and examiner will then discuss the case and further management.
- Both candidate and examiner along the lines of what "went well" and "next time" will then assess the case.
- The examiner will then score the candidate with:
 - 1 Able and trusted to observe only
 - 2 Able and trusted to act with direct supervision (supervisor present throughout)
 - 3 Able and trusted to act with direct supervision (supervisor present for part)
 - 4 Able and trusted to act at the level of a day-one consultant
- To pass the module, the score must be ≥ 3 , or else the candidate should repeat the module. There is no specific order to the modules and should correlate with his / her rotation and level of training.
- When a candidate applies for registration for the FC Orth (SA) Final examination, his application to the CMSA should be accompanied by a standard report by his respective HOD confirming that the candidate achieved a mark of 3 for all his/her required work-based assessment. The report should include all the required WBAs assessment reports. The CMSA will screen the report and forward this to the Orthopaedic Examination Committee for final approval.
- Should the candidate have difficulty identifying appropriate cases he should engage with his HOD, failing which he should approach the College of Orthopaedic Surgeons.
- In time, we will move towards digitalisation of the process and the addition of external examiners. Furthermore, additional work based assessments will be introduced to assess the clinical assessments of patients, non-technical skills and professional practice competencies.

3.4 Structure of the final examination

- a Three 3 hour written papers
 - Paper 1: Elective and Basic Sciences: 100-120 single best answer questions
 - Paper 2: Elective and Foundation Competencies: 100-120 single best answer questions
 - Paper 3: Trauma : 100-120 Single Best Answer Questions

See appendix C

Only successful candidates will be invited to proceed to (b) and (c).

- b Clinical Component

Examination rules for a "Virtual" clinical exam in the format of Structured Oral Examinations (SOE):

 - i. Clinical Based Scenarios conducted as follows
 - Three Clinical Scenario Based stations of 30 minutes duration each.
 - ii. Three standardised orals 30 minutes each based on slide presentations of 8-10 cases
 - Orthopaedic trauma
 - Orthopaedic pathology
 - Reconstructive / elective orthopaedic surgery

There are two examiners for the Clinical Based Scenarios and Orals who provide a consensus mark.

- The examination material may include case histories and test results, images, photos, diagrams, short video clips, histology and radiology.
- The examination material may be presented as a PowerPoint presentation
- The examination will be conducted remotely using video conference IT link(s) with examiner(s).

3.5 Syllabus for the final examination

The theory and practise of orthopaedic surgery including operative surgery and the applied basic sciences, anatomy, physiology and pathology.

See appendix D.

3.6 a Analysis of the final examination results within the Single Best Answer papers

- No correction for guessing will be applied.
- The examination committee/delegated parties/convenor and moderators will analyse the SBA results in terms of the individual questions/answers and questions with poor metrics will be flagged. These questions will be checked for correctness and appropriateness, excluded if not and the totals recalculated.
- The overall average will be assessed which is expected to be around 55 – 60 % based on past examinations. Should this vary by more than 5%, the examination committee will re-adjust the marks using a ratio to correct the average.
- The analysis of the final examination result are moving towards the Modified Angoff standard setting approach and will be inducted throughout the 2023 examination cycle and beyond

b Clinical Based Scenarios and Orals

The two examiners will mark each case independently. At the end of the 30-minute assessment, the examiners will discuss the candidate's performance and come up with a consensus mark with a clear pass, fail or excellent indication. Should they be unable to, this must be brought to the end of day examiners meeting to resolve.

3.7 Pass criteria for the final examination.

- a. Achieve $\geq 50\%$ for each of the three papers.
- b. Achieve $\geq 50\%$ in at least 2 of the 3 clinical based scenarios with an overall oral average of $\geq 50\%$
- c. Achieve $\geq 50\%$ in at least 2 of the 3 orals with an overall oral average of $\geq 50\%$

The weighting of the three components i.e. Written, Clinical Based Scenarios and Orals are equal for the final overall mark

3.8 Edelstein medal

- This medal is awarded annually to the part II candidate with the highest average score of the three final examination components.
- The CMSA identifies the highest scores from each semester examination and refers this to the orthopaedic council president for confirmation. This is a standing agenda item at the council meeting for discussion and approval.
- The proposed candidate with the highest average score must achieve a total average score of $\geq 70\%$ to qualify for the Edelstein Medal

3.9 Examination committee (EC)

To ensure consistency of examination standards and execution, this committee has been established as a sub-committee of the Orthopaedic Surgery constituent council. The Examination committee will be functional by 01/01/2023.

ADMISSION AS A FELLOW

- 1. Only candidates who have completed training in a CMSA recognised registrar post may be awarded a fellowship if successful in the examination.
- 2. **Candidates who have written the examination as a prerequisite from the HPCSA for inclusion on the specialist register are not eligible to be awarded a Fellowship but will be sent a letter confirming their success in the examinations.**

All other candidates will be asked to sign a declaration as below:

I, the undersigned, do solemnly and sincerely declare

that while a member of the CMSA I will at all times do all within my power to promote the objects of the CMSA and uphold the dignity of the CMSA and its members

that I will observe the provisions of the Memorandum and Articles of Association, By-laws, Regulations and Code of Ethics of the CMSA as in force from time to time

that I will obey every lawful summons issued by order of the Senate of the said CMSA, having no reasonable excuse to the contrary

and I make this solemn declaration faithfully promising to adhere to its terms

Signed at this..... day of

..... 20

Signature

Witness

(who must be a Founder, Associate Founder, Fellow, Member, Diplomate or Commissioner of Oaths)

- 3. A two-thirds majority of members of the CMSA Senate present at the relevant meeting shall be necessary for the award to any candidate of a Fellowship
- 4. A Fellow shall be entitled to the appropriate form of certificate under the seal of the CMSA
- 5. The examination fee shall be refunded in full excluding HPCSA candidates who are not entitled to a Fellowship
- 6. The first annual subscription is due one year after registration (statements are rendered annually)

APPENDIX A**1.0 Syllabus FC ORTH (SA) INTERMEDIATE****1.1 Paper I**

- Please refer to FCS (SA) regulations, page 17-22.

1.2 Paper II: The principles of Orthopaedic surgery:

- Principles and management of fractures and dislocations.
- Principles and management of open fractures.
- Biomechanics applicable to fracture fixation and instrumentation failure.
- Bio tribology, including joint lubrication and friction.
- Basic science: Bone, cartilage and substitutes basic science including healing, osteoporosis and stress fractures.
- Acute and chronic bone and joint infection (Septic arthritis and acute osteitis, Chronic osteomyelitis, Fracture related infections, Prosthetic Joint Infections, spinal infections)
- Inflammatory and Metabolic bone and joint diseases
- Pathology, diagnosis and management of soft tissue and bone tumours (benign and malignant).
- Musculoskeletal imaging including x-ray, nuclear studies, ultrasound, CT, MRI and PET.

2.0 SUGGESTED READING FOR INTERMEDIATE**2.1 Care of the surgical patient**

- 2.1.1 The Handbook of Surgical Intensive Care. Lysterly HK, Gaynor JW, Mosby Yearbook.
- 2.1.2 The ICU Book. Marino PL. William and Wilkens
- 2.1.3 Handbook of Trauma for Southern Africa. Nicol & Steyn. Oxford
- 2.1.4 Oh TE. Intensive Care Manual. 3rd ed. Sydney: Butterworth's, 1996
- 2.1.5 Intensive Care Manual. Oh TE, Butterworth Heinemann
- 2.1.6 Trunkey, Lewis. Current Therapy of Trauma. 2nd ed. BC Dekker, 1999
- 2.1.7 Schwartz SI, Shires GT. Principles of Surgery. 7th ed. New York; London: McGraw-Hill, Health Professions Division, 1997
- 2.1.8 Christopher. F. Davis-Christopher Textbook of Surgery: The Biological Basis of Modern Surgical Practice: Sabiston Textbook of Surgery:. 16th ed. Philadelphia; London: WB Saunders, 2000
- 2.1.9 Principles of Surgical Patient Care 2nd Edition. Mieny CJ, Mennen U, New Africa Education.
- 2.1.10 Review of Medical Physiology. Ganong WF, Appleton & Lange.
- 2.1.11 Intensive Care Medicine. Irwin and Rippe
- 2.1.12 Surgical Intensive Care. Barie FS, Shires GT, Library Congress Cataloguing in Publication Data.
- 2.1.13 ATLS Manual American College of Surgeons 4th Edition
- 2.1.14 Most ICU rotations provide a collection of articles or local manuals.

2.2 The Principles of Orthopaedic Surgery

- 2.2.1 Miller's Review of Orthopaedics 8th Ed. Mark D. Miller; Stephen R. Thompson. Print ISBN: 9780323609784, e-text ISBN: 9780323609807
- 2.2.2 Apley's System of Orthopaedics and Fractures 10th Edition. Blom, Warwick, Whitehouse. ISBN: 9781498751674
- 2.2.3 www.orthobullets.com

Reading should not be limited to the suggested texts, as much of the up-to-date information will be acquired during training

APPENDIX B**1.0 Work based assessment modules****1.1 Trauma**

- Distal radius fracture ORIF
- Flexor tendon repair (Zone 2 to 3)
- Sub-trochanteric femoral fracture ORIF
- Tibial plateau fracture ORIF
- Ankle fracture ORIF
- Humerus Fracture (Distal third) ORIF
- Paediatric supracondylar fracture reduction and fixation

1.2 Elective

- Rotator cuff surgery (open or arthroscopic)
- Carpal Tunnel release OR De Quervains disease release
- Primary Total Hip Replacement
- Hallux Valgus surgery
- Surgical approach to the spine
- Biopsy of the spine
- Guided growth procedure
- Arthroscopic evaluation of the knee joint

APPENDIX C

1.0 Paper 1:
Elective (83 %) and Basic Sciences (17%): 100-120 Single Best Answer Questions

Distribution of questions:

- Even spread of columns with maximum of 10 % variation

Domain	Weighting
General	+ - 17 % (±20 Questions)
Paediatric Orthopaedics	+ - 17 % (±20 Questions)
Spinal Surgery	+ - 17 % (±20 Questions)
Shoulder and Elbow	+ - 17 % (±20 Questions)
Hands and Wrist	+ - 17 % (±20 Questions)
Basic Sciences	+ - 17 % (±20 Questions)

2.0 Paper 2:
Elective (83%) and Foundation Competencies (17%): 100-120 Single Best Answer Questions

Distribution of questions:

- Even spread of columns with maximum of 10 % variation

Domain	Weighting
Arthroplasty,	+ - 17 % (±20 Questions)
Reconstruction: Arthroscopy and Sport	+ - 17 % (±20 Questions)
Tumour, Sepsis and Limb Reconstruction	+ - 17 % (±20 Questions)
Pelvis, Sacrum, Hip Joint	+ - 17 % (±20 Questions)
Foot & Ankle	+ - 17 % (±20 Questions)
Foundation Competencies	+ - 17 % (±20 Questions)

Foundation competencies:

- Communication
- Teamwork, conflict management
- Professionalism
- Leadership / organisation skills
- Advocacy / Education
- Research
- Statistics
- Practice management
- HPCSA regulations
- Coding (ICD10)
- Ethics

3.0 Paper 3:
Trauma (100 %): 100-120 Single Best Answer Questions

Distribution of questions:

- Even spread of columns with maximum of 10 % variation

Trauma Domains	Weighting 100% (120 Questions)
General Trauma	10 % (12 Questions)
Paediatric Trauma	15 % (18 Questions)
Adult Trauma	
Upper limb	30% (36 Questions)
Shoulder girdle	5% (6 Questions)
Humerus	5% (6 Questions)
Elbow	5% (6 Questions)
Forearm	5% (6 Questions)
Wrist	5% (6 Questions)
Hand	5% (6 Questions)
Axial skeleton	15 % (18 Questions)
Pelvis	5% (6 Questions)
Spine cervical	5% (6 Questions)
Spine TL	5% (6 Questions)
Lower limb	30% (36 Questions)
Hip	5% (6 Questions)
Femur	5% (6 Questions)
Knee	5% (6 Questions)
Tibia	5% (6 Questions)
Ankle	5% (6 Questions)
Foot	5% (6 Questions)

APPENDIX D

FC ORTH (SA) FINAL SYLLABUS AND TRAINING

The candidate should be able to present current knowledge in a mature and coordinated manner demonstrating clinical and technical competence indicating preparedness for safe, competent independent specialist practice.

The candidate requires a broad understanding of musculoskeletal conditions from aetiology, pathology, natural history, intervention options and the consequences thereof, both positive and complications with relative risk. An appreciation of the non-operative and operative modalities is required with an understanding of appropriateness (risks, safety, costs) in a given scenario.

1.0 ORTHOPAEDIC TRAUMA

- 1.1 **General**
- 1.2 **Fractures:** definition; biomechanics; principles of management
- 1.3 **Complications:** skin; vascular; nerve injuries; muscle/tendon injuries; associated injuries; fat embolism syndrome; deep vein thrombosis, pulmonary embolism; delayed union and non-union
- 1.4 **Pathological fractures**
- 1.5 **Soft tissue injuries**
- 1.6 **Joint injuries:** classification; principles of operative management; surgical repair of simple injuries; surgical management of complex acute injuries; major surgical joint debridement
- 1.7 **Upper extremity:** shoulder (including scapula, sterno-clavicular joint, clavicle and acromio-clavicular joint); glenohumeral joint; humerus, proximal; shaft; elbow; radius and ulna; distal radioulnar joint; carpal bones; metacarpals and phalanges
- 1.8 **Spine and pelvis:** spine general; cervical spine; thoracic and lumbar spine; pelvis; acetabulum
- 1.9 **Lower extremity:** hip; femur intracapsular; femur extracapsular; subtrochanteric; femur shaft; femur distal; knee - ligaments and dislocations; patellar fractures and dislocations; menisci; tibial plateau; tibial shaft; ankle fractures; ligament injuries - dislocations of ankle; foot, tarsals (fractures and dislocations); subtalar dislocations; calcaneus fractures; tarsal fractures; tarsal metatarsal dislocation; metatarsal and phalangeal fractures
- 1.10 **Note:** In every instance the registrar would be required to have the cognitive knowledge of clinical and radiological assessment, classification, complications and associated injuries, non-operative management, and indications for surgery. He would also be required to have obtained technical competence for non-operative management, operative management and late reconstruction for complications.

2.0 PAEDIATRIC ORTHOPAEDIC TRAUMA

- 2.1 Epiphyseal plate injury; difference in fractures between children and adults; birth fractures; fractures in child abuse; injuries to the hand and wrist; forearm fractures in children; fractures and dislocations about the elbow; fractures of the humeral shaft and shoulder; spinal column injuries in children; pelvic fractures in children; fractures and dislocations about the hip in children; fractures of the femoral shaft; fractures above the knee in children; fractures and dislocation of the patella in children; fractures of tibia and fibula; pathological fractures
- 2.2 **Note:** The rotation will include **non-traumatic paediatric orthopaedics** during which the registrar will be expected to demonstrate that he appreciates the unique psychological and emotional aspects of illness or injury in children and the differences in diagnosis, treatment and prognosis in children's disorders imposed by the physician. He must also understand the role played by the family of the sick child.

3.0 PAEDIATRIC ORTHOPAEDIC CONDITIONS

- 3.1 **Development disorders**
- 3.2 **Metabolic and endocrine disorders:** slipped capital femoral epiphysis; rickets; renal osteodystrophy; hypo-phosphatasia; hypo-parathyroidism; hypo-thyroidism
- 3.3 **Circulatory disorders**
- 3.3.1 **Osteonecrosis:** Osgood Schlatter's disease; Kohler's disease; Sever's disease; Freiburg's infarction; Scheuermann's disease; Calve's disease; Panner's disease; Blount's disease; Legg/Calve/Perthes' disease; osteochondritis dissecans
- 3.3.2 **Sickle cell disease**
- 3.4 **Tumours and tumour-like conditions**
- 3.5 **Infections of bones and joints**

- 3.6 **Arthritis** pyogenic; rheumatoid; haemophilic; tuberculous
- 3.7 **Other affectations of joints:** discoid meniscus; popliteal cyst; synovitis of the hip
- 3.8 **Affectations of the nervous system:** cerebral palsy; spinal dysraphism; diastematomyelia; Friedreich's ataxia; peripheral nerve disorder; neurofibromatosis; spinal atrophy
- 3.9 **Affectation of muscle**
- 3.10 **The spine:** scoliosis; congenital disorders; Scheuermann's disease
- 3.11 **Congenital disorders of the upper limb**
- 3.12 **Lower limb**
 - 3.12.1 **Foot deformities:** pes planus; pes cavus
 - 3.12.2 **Leg deformities:** torsional; angular; leg length inequality
 - 3.12.3 **Congenital disorders:** club foot; metatarsus varus; tarsus coalition; congenital dislocation of the hip; congenital dislocation of the knee; vertical talus; proximal femoral focal; reduction deformities; coxa vara; pseudarthrosis of the tibia

4.0 HAND SURGERY

- 4.1 **General:** A detailed knowledge of the anatomy and functional anatomy of both hand and wrist, and the technique of physical examination of the hand to include a detailed neurological examination and the knowledge and clinical assessment of the hand and hand function in specific conditions (i.e. cerebral palsy/RA)
- 4.2 **Trauma:** fractures and dislocations; ligament, tendon and nerve injuries; massive combined injuries
- 4.3 **Arthritis:** rheumatoid arthritis; osteoarthritis
- 4.4 **Congenital anomalies**
- 4.5 **Quadruplegia and peripheral nerve entrapment syndromes**
- 4.6 **Infections**
- 4.7 **Tumours**

5.0 ELECTIVE ADULT RECONSTRUCTIVE SURGERY

- 5.1 **Spine**
 - 5.1.1 **General:** A basic knowledge of the embryology of the spine, its gross anatomy and the functional and microscopic anatomy of the spinal cord; biomechanics of the spine and its abnormalities and non-operative management using various types of braces
 - 5.1.2 **Fractures:** cervical discs; degeneration, instability of cervical spine; thoracic discs; lumbar discs; mechanical instability (spondylolytic or degenerative); degenerative changes (spinal stenosis, etc.); infection; biopsy; tumours; deformity
 - 5.1.3 **Note:** The registrar will be required to have the cognitive knowledge of clinical and radiological assessment, classification, associated conditions, non-operative management, indications for surgery, detailed knowledge of the pathogenesis, methods of investigation and results and complications; and the technical skill for the operative management of the more common conditions.
- 5.2 **Inflammatory / infective arthropathy**
 - 5.2.1 **General:** anatomy; physiology; pathology; clinical evaluation; investigative techniques; pharmacology; orthotic principles; role of surgeon
This would include the principles of synovectomy, joint realignment, stabilisation, osteotomy, arthrodesis and arthroplasty. It would also include establishment of treatment priorities in multiple joint conditions
 - 5.2.2 **Infections**
 - 5.2.3 **Inflammatory**
This would include the pathology and radiological classification of inflammatory joint diseases
 - 5.2.4 **Upper extremities:** hand; wrist; elbow; shoulder
 - 5.2.5 **Spine**
 - 5.2.6 **Lower extremity:** foot; ankle; knee; hip
 - 5.2.7 **Degenerative**
 - 5.2.7.1 **Upper extremity:** hand; wrist; elbow; shoulder
 - 5.2.7.2 **Spine**
 - 5.2.7.3 **Lower extremity:** foot; ankle; knee; hip
 - 5.2.8 **Reactive and metaplastic:** (villonodular synovitis, synovial chondromatosis)
 - 5.2.9 **Tumours**
 - 5.2.10 **Trauma of joints** see **Adult Trauma**

6.0 ORTHOPAEDICS GENERAL - VARIOUS REMAINING ORTHOPAEDIC TOPICS**6.1 Foot and Ankle**

6.1.1 **General:** anatomy; biomechanics; clinical evaluation; investigative techniques

6.1.2 **Ankle:** trauma; osteochondritis dissecans; osteoarthritis

6.1.3 **Subtalar complex:** hypermobile pes planus; spastic flat foot; lateral process fractures

6.1.4 **Tarsal and tarso-metatarsal:** pes cavus; degenerative

6.1.5 **Metatarso-phalangeal**

6.1.6 **Sesamoids**

6.1.7 **Neuroma**

6.1.8 **Toes**

6.1.9 **Specific conditions:** neuropathic; paralytic; rheumatoid

6.1.10 **Note:** The registrar will be required to have the cognitive knowledge of the clinical and radiological assessment, the differential diagnosis, biomechanical considerations, pathogenesis of the deformity, investigative methods, non-operative management and indication for surgery; and to exhibit technical competence in the management of minor deformities and in the operative management.

6.2 Amputations

6.2.1 **Amputations:** General conditions - including a detailed knowledge of the conditions requiring amputation (ischaemia, tumour, infection, trauma) and the specific indication required for each; limb assessment; patient assessment; team approach; surgical principles

6.2.2 **Prosthetics:** material; functional assessment; socket; suspension; joint; cosmetic; fitting; upper extremity

6.2.3 **Orthotics:** orthotic principles; materials; assessment; fitting prescription

6.2.4 **Note:** Application of this knowledge is required in terms of post-operative management, assessment of complications, stump care and the technical considerations in both the lower extremity and the upper extremity.

6.3 Sports medicine

Familiarity is required with the specific anatomical, physiological, pathophysiological, biomechanical and pharmaco-therapeutic aspects of sports medicine

6.3.1 Upper extremity

6.3.1.1 **Shoulder:** impingement syndromes; biceps tendon; gleno-humeral instability

6.3.1.2 **Elbow:** epicondylitis; medial instability

6.3.2 Lower extremity

6.3.2.1 **Foot:** ankle; Achilles tendon

6.3.2.2 **Knee:** meniscus and ligament; patella

6.3.2.3 **Lower leg:** (ie shin splints, compartmental syndrome, etc.)

6.3.2.4 **Hip:** stress fracture; muscle tendon

6.3.3 Spine**6.4 Infections**

6.4.1 **General:** definitions and terms; aetiology and classification; pathogenesis; clinical picture

6.4.2 **Investigations:** laboratory and classifications; imaging; biopsy; treatment; pharmacology of antimicrobial agents; prognosis and complications

6.4.3 **Chronic osteomyelitis**

6.4.4 **Septic arthritis**

6.4.5 Fracture related infections

6.4.6 Prosthetic Joint Infections

6.4.7 **Note:** Cognitive and technical competence is required in specific areas such as infection in compound fractures, total joint replacement, trophic ulcerations, immune compromised conditions, the spine and tuberculosis. This includes preventative measure to provide the best prophylaxis.

6.5 Tumours and reactive lesions

- 6.5.1 Definitions and terms, theories of aetiology, pathogenesis and methods of spread, clinical presentation, epidemiology, methods of investigation, classification by cell of origin, principles of technique or biopsy, principles of action of adjunctive treatment, clinical pathological and radiological pictures of tumours and reactive lesions of bone and soft tissues, knowledge of the techniques and significance of staging, methods of investigation, principles of surgical management
- 6.5.2 Knowledge is required but not the technical competence in the surgical management of major surgical ablative therapy and reconstruction, limb sparing surgery and knowledge of methods of reconstruction. The registrar should have acquired the technical competence in the surgical management of intra-compartmental soft-tissue tumours and of bone tumours in the distal extremities
- 6.5.3 The registrar should also be familiar with the role of chemotherapy and the various modalities of irradiation therapy (gamma, beta rays, neutron therapy, etc) that are used in formulating the total management strategy of the patient

6.6 Metastatic tumours to bone

The registrar should be able to “work up” a tumour of unknown origin and have knowledge of the most common primary tumours metastasising to bone. The registrar should also have a radiological picture of metastatic bone diseases and its differential diagnosis and be able to manage the complications of metastatic bone disease. Knowledge of methods of spine decompression and stabilisation is required together with technical competence in both the non-operative management and the surgical management of pathological fractures

6.7 Neuromuscular

- 6.7.1 **Brain:** Anatomy; physiology and pathology of traumatic vascular and degenerative conditions presenting as or altering musculoskeletal function; detailed neurological examination of higher centres as they pertain to musculoskeletal function; non-operative management of deformity and spasticity by orthotics or injection techniques; principles of surgical management
- 6.7.2 **Spinal cord:** Anatomy; physiology; pathology; clinical picture; investigation; non-operative and surgical management of weakness, deformity or spasticity
- 6.7.3 **Peripheral nervous system:** Anatomy; physiology; pathology; clinical picture; technical competence in non-operative management (orthotics) and operative management (neurolysis, decompression)
- 6.7.4 **Muscle:** Anatomy; physiology; pathology; clinical picture; principles and technical application of surgical management of simple and complex neuromuscular disorders

7.0 FOUNDATION COMPETENCES

Communication	Teamwork, conflict management
Professionalism	Leadership / organisation skills
Advocacy / Education	Research
Statistics	Practice management
HPCSA regulations	Coding (ICD10)

8.0 SUGGESTED RESOURCES

- 8.1 Rockwood and Green
- 8.2 www.orthobullets.com
- 8.3 AAOS Compendium Orthopaedic Review Ed 3 Vol 1-3
- 8.4 Miller's Review of Orthopaedics 8th Ed. Mark D. Miller; Stephen R. Thompson.
Print ISBN: 9780323609784 eText ISBN: 9780323609807
- 8.5 Evidence-Based Orthopaedics, M Bhandari, 2nd Edition.

Many of the successful candidates used a collection of review articles compiled over their rotation with the free offering from OrthoBullets with its explanations and article recommendation for each topic. There is no need to buy many expensive books.